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ANIMAL KEEPERS' FORUM



The Journal of the American
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January 2001

ANIMAL KEEPERS' FORUM, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614
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Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

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About the Cover....

*This month's cover features the Black Rhinoceros (*Diceros bicornis*) drawn by Kecia Spears of Frankfort, IN. The most distinguishing characteristic of this species is its prehensile upper lip used for feeding from trees and shrubs. The average weight is 1700-300 lbs. (770-1300kg), and the average height is 4.5-5.5 ft. (1.4-1.7m) tall at the shoulder. Its two horns, which are prized by poachers, have made the Black Rhinoceros an endangered species. In fact, this species has suffered the greatest rate of decline of all rhino species in the last 10-15 years, with populations reduced by 85%. Growing anti-poaching efforts have led to the stabilization of the population to approximately 2600. Thanks, Kecia!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white **or** color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$3.00 each.

E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@kscable.com<

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type "Elvis" in password box.
BFR Website: <http://bfr.aazk.org>**

Scoops & Scuttlebutt



AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member **MUST** have an active role in the conservation effort submitted for consideration.

The Zoo Keeper Grants in Research – Two \$750.00 grants are funded to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator **MUST** be a full-time keeper and a member in good standing of AAZK, Inc.

Deadline for application submission for either grant option is **31 May 2001**. Successful grant recipients will be announced at the AAZK National Conference in Toronto, Canada in early October 2001. The grant cycle runs from 01 January 2001 to 31 December 2001. For further information or an application packet visit the AAZK website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committee Chair, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504; e-mail: jrsotter@iserv.net; Fax: (616)336-3709. Be certain to specify whether you are requesting information on the CPR or Research Grants.

Index 2000 - A Thank You

I would like to say a very special "Thank You" to Gretchen Ziegler (Sequoia Park Zoo, Eureka, CA) and Kayla Grams (currently Backus, MN) for putting together the 2000 AKF Index which appears at the back of this issue. It is a monumental effort to compile all this information and could not be done without the hard work of these wonderful volunteers. Both Gretchen and Kayla have been involved with *Animal Keepers' Forum* for many years, working on everything from editing and proofreading to coordinating the popular *Enrichment Options* column. Gretchen will be retiring from the EO column this month, but Kayla will continue along with Jan Roletto (Hogle Zoo, Salt Lake City, UT) who has admirably filled in while Kayla was in Africa. Again, many thanks for your hard work! *Editor.*

PJC Zoo Animal Technology Program

The Pensacola Junior College zoo animal technology program is now accepting applications for entry in 1 August 2001. This is a two-year associate of science degree program offered as a cooperative effort of PJC and THE ZOO in Gulf Breeze, FL. Our program includes general education, a comprehensive series of academic courses in animal biology, specialized zoo topic courses, and practical animal care, medical husbandry, and exhibit repairs skills courses. Application packets may be obtained from the PJC biology department secretary at (850) 484-1168 or on the web at <http://www.pjc.cc.fl.us/academics/departement/deptbio.asp> and further information is available by contacting Joyce Kaplan, PJC Zootech Director, at jkaplan@pjc.cc.fl.us or call (850) 484-1164.

Dallas Zoo Offers Volunteer Field Research Opportunity

The research department at the Dallas Zoo has organized a unique opportunity for volunteers to assist in field research. Approximately every six months, they lead an expedition to Tamaulipas, Mexico, to study wild carnivores and raptors with a PhD student from the University of Mexico. This trip provides an excellent opportunity to

learn field research techniques including live trapping of mammals, radio-telemetry, and capture and banding of raptors. Four distinct habitats may be found in the research area: 2000 acres of tropical deciduous forest, 500 acres of mangrove forest, 150 acres of grasslands and two miles of natural, undeveloped beach. Wildlife watching includes coatiundi, deer, javalina, ocelot, bobcat, and jaguarundi as well as 200 species of birds including parrots, falcons, raptors and tropical songbirds. Upcoming field dates are 10-23 March 2001. For further information on this or other upcoming expeditions, contact Wanda Weaver, Dallas Zoo, 650 S. R.L. Thornton Frwy., Dallas, TX 75203 (214) 670-6833. You are also invited to visit the following websites for additional information and accounts of a WRE participant's experiences: www.angelfire.com/tx/margay/index.html or www.lifeadventures.com/ocelot.htm<

Elephant Ultrasound Workshop Scheduled

Riddle's Elephant and Wildlife Sanctuary will be conducting the Second and Third Elephant Ultrasound Workshop for wildlife veterinarians, in the spring and summer of 2001. The spring session begins Wednesday, March 28 to Sunday, April 1, 2001. The summer session begins Wednesday, June 20 to Sunday, June 24, 2001. Spaces are very limited; advance registration is recommended.

Participants will learn evaluation techniques and the interpretation of ultrasound imaging, as well as semen collection in elephants. Hands-on breeding soundness and general health evaluations will be performed using the sanctuary's eleven elephants - male and female, African and Asian elephants. The workshop will also allow participants to monitor the pregnancy of one of the females, whose due date is February 2002.

This unique course in ultrasound technology will be taught by world-renowned veterinarian Dr. Dennis Schmitt, DVM, PhD, from Southwest Missouri State University (SMSU) in Springfield, Missouri. Dr. Schmitt is one of the pioneers in this field of adapting modern technology to better assess elephants for medical reasons.

The Workshop registration fee of US\$1000 includes tuition, transportation between the Little Rock Airport and the sanctuary, all meals, and lodging at the Riddle's Elephant and Wildlife Sanctuary.

For more information, or a registration packet, please contact: Riddle's Elephant and Wildlife Sanctuary, PO Box 715, Greenbrier, AR 72058 USA; (501)589-3291 phone (501)589-2248 fax; e-mail:elephantfarm@alltel.net or Dr. Dennis Schmitt at dennisschmitt@smsu.edu

Two Corrections of Note:

Please be advised that the correct Bowling for Rhinos website URL is: <http://bfr.aazk.org> It has previously been incorrectly listed the *AKF* on the Information for Contributors page. Please note this correct address for future reference.

In the November 2000 issue of *AKF* (Special Duiker Issue) author Heather Eves (Duikers: A Primary Target for Africa's Bushmeat Trade) was incorrectly spelled as "Eaves". We apologize for this error.

Coming Events

Wolf Handling & Chemical Immobilization - 18-20 January 2001 at California Wolf Center, Julian, CA. For more information contact Mark R. Johnson, DVM, Wildlife Veterinary Resources, Inc. at wildlifevet@gomontana.com or call (406) 586-4624.

VIII International Otter Colloquium - 20-26 January 2001 in Valdivia, Chile. The IUCN/SSC Otter Specialist Group and Universidad Austral de Chile announce a meeting of the IUCN/SSC Otter Specialist Group and VIII International Otter Colloquium. For more information contact: Dr. Gonzalo Medina Vogel Instituto de Ecología y Evolución Universidad Austral de Chile Casilla 567, Valdivia, Chile. Phone: +56/63 293061(office); Fax: +56/637221344; Cell:+56/09/468893; Email: gmedina@valdivia.uca.uach.cl Or visit the Website @ www.ottercolloquium.cl

Ecology and Conservation of Mini-Antelope - 12-17 February 2001 in Bulawayo, Zimbabwe. An international symposium on duiker and dwarf antelope in Africa. Hosted by the Marwell Zimbabwe Trust. For further information contact: aploman@paigntonzoo.org.uk

Fourth Annual Wildlife Exhibitors and Breeders Conference 2001 - 15-17 February 2001 in Gainesville, FL. Hosted by The Lubee Foundation and sponsored by The Zoological Consortium of MD, Inc. Will include field trips, talks, good food and networking with other professionals. For more information and registration materials contact Richard Hahn, 1894 Eucalyptus Ave., Arcadia, FL 34266; fax (863) 494-5408; e-mail ZOOCONSORT@DESOTO.NET To present a talk or for program information contact John Seyjakat at (352) 485-1250, Lubee Foundation, 1309 NW 192 Ave., Gainesville, FL 32908.

International Association of Avian Trainers and Educators Ninth Annual Conference - 1-4 March 2001 in Orlando, FL. For more information visit www.IAATE.org or contact Barbara Heidenreich at barbnei@aol.com or call (407) 938-0847.

13th Non-Domestic Neonatal Symposium - 7 March 2001 in San Diego, CA. For information contact Karla Michelson, San Diego Wild Animal Park; phone: (760) 735-5530, e-mail - kmichelson@sandiegozoo.org

National Wildlife Rehabilitators Association 19th Annual Symposium - 13-17 March 2001 in Lake Tahoe, CA. For more information, please contact NWRA, 14 North 7th Ave., St. Cloud, MN 56303; phone (320) 259-4086; e-mail at nwra@nwrwildlife.org or visit the NWRA website at www.nwrwildlife.org

Second European Zoo Nutrition Conference - 6-9 April 2001 in Southampton, UK. More detailed

information about the program and registration/abstract submission deadlines is available at <http://www.marwell.org.uk> To join the conference mailing list, send your contact details by email to: Nutrition2001@marwell.org or by post/fax to: Zoo Nutrition 2001, Marwell Zoological Park, Owslebury, Winchester, Hampshire, SO21 1JH, United Kingdom. Fax: (0) 1962 777511.

The Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or contact the local hosts Andy Balustein (blaustea@bbc.orst.edu) or Lynne Houck (houck@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aav.

American Association of Zoo Veterinarians - 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of wildlife Veterinarians and the Nutrition Advisory Group. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (610) 892-4812; fax (610) 892-4813; e-mail aazv@aol.com



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2000 Conference Proceedings Order Information

If you are interested in ordering a copy of the Proceedings containing the papers presented at the 17th NationalAAZK Conference which was held in Columbus, OH, you will need to fillout and return the form on the next page with the appropriate payment. All orders **must** be prepaid in U.S. Funds ONLY. Conference Proceedings are planned to begin shipment in January 2001. Once shipped, domestic orders should take about two weeks; overseas orders take longer by surface post. Prices are as follows:

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Note: those presenters who correctly submitted their manuscripts for inclusion in their 2000 Conference Proceedings will receive one gratis copy. All others wishing a copy must place an order.

The following papers are included in the Proceedings: Operant Conditioning of Lowland Tapirs for the Purpose of Blood collection ~ Mixed Species Exhibitory ~ A Study in Temporary Housing ~ Blue Bunny® Enrichment Day ~ Using Tractable Animals to Convey Conservation Messages ~ Genetic Analysis of the Captive giraffe: A Keeper Initiated Research Project ~ Making Conservation a Reality: Prairie Restoration at the Rocky Mountain National Wildlife Refuge in Denver, Co ~ Memorable Presentations of Applied Behavior Analysis ~ FIC, Clinical Disease or Not? ~ Innovations in Animal Record Keeping: the Use of Technology to Make Daily Reporting More Efficient ~ Response to Medical Crisis: A New Approach to Orangutan Husbandry at the Pittsburgh Zoo and Aquarium ~ To In Situ or Not In Situ, That's Not the Question Anymore: After You Say I Do to In Situ ~ Using Graphics to Promote Enrichment ~ Environmental Enrichment of Asian Elephants at the Detroit Zoo ~ A Gorilla Cesarean Section at the Columbus Zoo and Aquarium ~ A Profile of Progesterone Excretion During Pregnancy in Gelada Baboons ~ Pseudopregnancy in Grey Wolves ~ Supplemental Feeding of a Dam-reared Sumatran Tiger at the Phoenix Zoo ~ Organizational Techniques to Foster Consistency in Animal Training Programs ~ Overcoming Constraints of Training Individual Mandrills in a Large Group ~ Going Green ~ What Does It Mean? ~ Specialization or Generalization? An Outreach Perspective ~ Raising Penguins from Scratch ~ 2000 Bowling for Rhinos ~ Where Does the Money Go? ~ Initiation of a Howler Monkey Training Program ~ Guidelines for Establishing Training and Conditioning Protocols for Captive Duikers ~ A New Training Program for Old World Monkeys: Black and White Colobus ~ Enriching Hoof Stock ~ A Tricky Business ~ The Lewa Wildlife Conservancy ~ A Project Supported by AAZK ~ Husbandry and Veterinary Procedure Training at Disney's Animal Kingdom: A Model for Role Clarification and Consensus ~ Set-Up of a 250-Gallon Coral Propagation Tank ~ Managing a Geriatric Gorilla: A Keeper's Perspective ~ Public Education: From a Keeper's Point of View ~ Temporary Separation from Group Members and Its Effects on the Relationships Among Western Lowland Gorillas ~ Introduction of two all-male Groups of Woolly Monkeys ~ Mommy Dearest II: Behavioral Conditioning of a Pair of Cotton-Top Tamarins to Increase the Potential for Appropriate Parental Care ~ **Poster Presentations:** The Columbus Zoo and Aquarium Gorilla Surrogacy Program ~ Human/Parental Rearing of a Hamadryas Baboon ~ Growth Rates of King Penguins Hand-Reared on Solid Food ~ An Overview of Training at Lincoln Park Zoo's Great Ape House ~ Recycle Program Success at Wildlife Safari ~ Recycling Benefits all ~ Photo Identification of King Penguins ~ Quarantine on Exhibit ~ A Success Story ~ Using Automatic Feeders as Enrichment to Increase Animal Visibility at Disney's Animal Kingdom ~ The Analysis of the Hand-Rearing Data on all Cheetah Cubs in the North American Population ~ Introduction of 1.0 Red Ruffed Lemurs to a Mixed Species Lemur Exhibit at the Dallas Zoo ~ **Workshop Summaries:** Otter Workshop 2000 ~ Making Good Impressions: A workshop on Casting Animal and Sometimes Human Body Parts ~ Is It Really Enrichment...How Can You Tell? ~ Australasian Workshop 2000 ~ Who Says You Can't Get What You Want? Animal Training Workshop ~ A Meeting of International Keepers ~ Enrichment "Rap" Session and Enrichment/Training Video Session.

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Once 2000 Proceedings copies are sold out, photocopies of individual papers will be available for \$3.00 each by contacting the AAZK Administrative Offices.

Orders will be shipped beginning January 2001

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AAZK Announces New Members

New Professional Members

Kelly J. Murphy, **San Diego Zoo (CA)**; Thomas M. Thompson, **Hawthorne Corp. (IL)**; Dawn Williams, **Grand Island Heritage Zoo (NE)**; Heather Wright, **The Phoenix Zoo (AZ)**; Richelle Mitchem, **Ft. Worth Zoo (TX)**; Erin S. Jones, **Utah's Hogle Zoo (UT)**; Melissa R. Eckel, **The Erie Zoo (PA)**; Juan Medrano, **Sea World of San Antonio (TX)**; Brandy Soulders, **Akron Zoological Park (OH)**; Dawn Sorgeler, **Baltimore Zoo (MD)**; Dr. Shannon Gonsoulin, **Zoo of Acadiana (LA)**; Rhiannon A. Judd, **Oakland Zoo (CA)**; Carol Matthews, **Wildlife Safari (OR)**; Timothy Grabowski, **Busch Gardens (FL)**; Gary E. Johnson, **Louisville Zoo (KY)**.

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Columbia, MO

Frank Buck Zoo
Gainesville, TX
William K. Baker, Jr., Zoo Curator

Endangered Species Conservation and Zoos

Durrell Wildlife Conservation Trust
Summer School
16 July to 3 August, 2001

This is an intensive course aimed at zoo staff, students and lay people with a strong interest in conservation and/or captive breeding. A combination of lectures, workshops and project work provides participants with a deeper understanding of endangered species management and how zoological institutions can be an aid to species survival.

Closing date for applications:
31 January, 2001

For further information contact:
The Summer School Co-ordinator,
Durrell Wildlife Conservation Trust,
Trinity, Jersey, Channel Islands
JE3 5BP

Tel: 01534 860037
Fax: 01534 860002
E Mail: itc@durrell.org

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ABC's

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

Question

American Zoo. Could you give an overview of the use of the bridge and maybe some resources related to it?

Answer

Questions on this topic will be discussed in the next couple of columns.

The bridge is used as a signal to let an animal know that they are on the right track or performing correctly. Like any other behavior, the association has to be trained in order to have any significance to an animal.

The role of the bridge is to create a link between the behavior and the reinforcer. This "IOU" signals the animal that reinforcement is coming and so becomes reinforcing itself. So a bridge is also a secondary reinforcer. Think of it as a "bridge" between the correct activity/behavior and the primary reinforcer. Many trainers will refer to the use of the bridge is as an event marker, since it marks the moment of success.

The bridge is used as a signal to convey good progress or successful completion of a behavior or chain of behaviors. The **intermediate bridge** signals that the animal is on the right track, while the **terminal bridge** signals that the animal has successfully completed a behavior.

The most familiar bridging tools in the zoo world are clickers, whistles, lights, specific tones or words, or specific actions or movements. Used efficiently, the bridge allows you to quickly communicate without having to bother with primary reinforcement at the exact moment of success.

The bridge is initially trained through consistent application and presentation with food (or primary reinforcement). So, if you use a clicker, pair it with the presentation of the food. Each time the animal gets a tidbit, the click is given at exactly the same time.

In the beginning, one click equals one reward. This is what is known as continuous reinforcement. As you become more adept at training you will move away from this rewarding schedule into an intermittent or variable reinforcement schedules. Then as you get more sophisticated you may then get into other types of schedules. *

Changing your reinforcement schedule is what makes training even more interesting to both the animal and trainer. Each trainer and facility will have different views on how to approach training and bridging applications. This is what makes training a science and an art. Sometimes you do things from an intuitive level and that is what makes each trainer vary in their approaches. Everyone has a different opinion, so just keep that in mind as I address some of your more specific questions.

Is there a minimum response level to the bridge that we should see before using it in the training program?

Yes. Outlining criteria for this is difficult since I actually use more of a subjective evaluation. The animal has to recognize the association between the bridge and the primary reinforcement. You will have to train that before you can begin to use the bridge in a training program.

Usually after several presentations of pairing the bridge with the presentation of reinforcement, you will see the animal “light up”. This might occur as a more alert response, a twinkle in the eye, or shift in attention or posture. The association between the tone and the food is established. Some animals take longer to establish this association but once it is understood, the bridge can begin to be used in training applications.

In the past I have just sounded the bridge and rewarded at the same time. Experience often gives you an eye for catching what the animal understands or is missing. However, for an observer learning the process I will sometimes work out a way to get a clear indication that the animal “gets” the concept.

For example, I might say the name of the animal and when the animal voluntarily gives me eye contact I will bridge and reinforce. After a few times if I bridge without using a name and the animal looks at me, this gives me an indicator that the animal has an association between the bridge and the behavior and the reward. For those species reluctant to give eye contact this can be a challenge, but you get the idea through the illustration.

To test this concept with your animal, train the bridge then once you think the association is established consider moving slightly, and then sound your bridge to check the animal’s response. If the animal responds accordingly that is a gauge for you.

In some cases many trainers prefer to introduce a target at this stage. They will touch the animal with the target while sounding the bridge. After a while they will slightly edge the target away and wait until the animal moves slightly to touch it. Bridging on contact usually clarifies the concept for the animal. The next attempt usually results in a faster response signaling to you, the trainer, that the association is understood.

What types of bridging stimuli have trainers used that work well?

Just about anything. Keep in mind that various tools have come into popularity for different reasons. Tools that can be used by all and that remain consistent between trainers help with maintaining consistency. Other tools are preferred because they can travel through water clearly or can keep your hands free. Here is a short list but you are only limited to your imagination: clickers, dog or police whistles, lights, vibration, specific tones, certain words, particular actions, or particular movements.

**NOTE: Most of you will probably encounter horrific amounts of acronyms like CRF, FI, FR, VI, VR, RIR, VRRV, to mention just a few. These are topics for other columns. Keep in mind; acronyms do not always translate well across industries. Use professional courtesy with others by stating or writing what you mean and giving the acronym after. These explanations are appreciated by everyone not just neophyte trainers!*

Resources of Interest

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Kazdin, A.E. 1994. *Behavior modification in applied settings*. Brooks/Cole Publishing.

Mazur, James. 1997. *Learning and behavior*. Prentice Hall.

Pryor, K. 1999. *Don't shoot the dog!* Bantam Books.

Rameriz, Ken. 2000. *Animal Training: Successful animal management through positive reinforcement*. Shedd Aquarium Press. (1-888-Sea Stuff)

Previous Columns of Interest

Guerrero, Diana. Training Question on Secondary Reinforcers. *Animal Keepers' Forum*. AAZK. Vol. 27(12) December 2000.

Guerrero, Diana. Training Question On How To Establish A Clicker Training Program. *Animal Keepers' Forum*. AAZK. Vol. 27(07) July 2000.

Guerrero, Diana. Establishing A Training Program: How Long Does It Take & Steps Required. *Animal Keepers' Forum*. AAZK. Vol. 26(09) September 1999.

Guerrero, Diana. Common Training Errors 101: Reinforcement & Punishment. *Animal Keepers' Forum*. AAZK. Vol. 25(06) June 1998.

Guerrero, Diana. Common Training Errors 101: Moving Ahead Before A Behavior Is Stabilized. *Animal Keepers' Forum*. AAZK. Vol. 25(01) January 1998.

Guerrero, Diana. Common Training Errors 101: Understanding Applications of the Bridge & Bridging Criteria. *Animal Keepers' Forum*. AAZK. Vol. 24(09) Part One: Sept 1997.

Guerrero, Diana. Common Training Errors 101: Understanding Applications of the Bridge & Bridging Criteria. *Animal Keepers' Forum*. AAZK. Vol. 24(10) Part Two: Oct 1997.

Guerrero, Diana. Common Training Errors 101: Confusing Consistency With Predictability. *Animal Keepers' Forum*. AAZK. Vol. 24(03) March 1997.

(About the Author: Since 1978, ARKANIMALS.COM Director, Diana Guerrero has worked professionally in a variety of animal facilities. Attending and completing courses in both animal management and training from institutions both here in the United States and Europe, she has been affiliated with some of the best organizations. She is an alumni of The Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Animal Affection Training School, The International Training Centre at the Jersey Wildlife Preservation Trust, and special program extensions with Marwell Zoological Park and Kent University. Guerrero started her career in the marine mammal field working as a naturalist, and subsequently became involved with terrestrial animals in zoos and other facilities. Guerrero writes a variety of animal-related columns, including the popular series, Unusual Animal Careers and does seminars nationally. Watch for two of her book projects in the summers of 1999 and 2000! Questions for ABCs should be submitted to Diana directly via e-mail:> arkabc@arkanimals.com< or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.)

Animal Behavior Management Committee

Update and Survey Results

The Animal Behavior Management (ABMC) Committee met for the first time at the National Conference in Columbus this past October. We discussed how to best serve the AAZK membership. A survey was provided at the conference to collect input from members to help establish and prioritize goals for the upcoming year. Sixty-three surveys were completed, a return rate of about 25% from the conference delegates.

The AMBC also presented a training workshop during Zoo Day at the conference, and assisted with an Enrichment and Training Video Night. A preliminary Animal Data Transfer form for training, as well as a training glossary and bibliography were also distributed to delegates. If you have not seen these materials, please ask AAZK members at your zoo who attended the conference if they have them. They are all works in progress, and we would appreciate member input.

Below are the results from the survey, which will help the committee prioritize the various tasks in the year ahead. The survey consisted of nine questions.

Question 1: Would you be interested in purchasing a training notebook?

YES: 57 No: 4

Question 2: Prioritize the sections that you would like to see included in the notebook.

RESULTS:	First Priority:	Starting a training program. (chosen first by 22 delegates.)
	Second Priority:	Behaviors
	Third Priority:	Training Manual
	Fourth Priority:	Definitions of Training Terms
	Fifth Priority:	Sample Training Forms
	Sixth Priority:	A Reference List

Returns were calculated by assigning values to each level of prioritization on each survey.

Question 3: Would you attend training workshops at AAZK National Conferences?

YES: 58 No: 1

Question 4: Would training workshops encourage you to attend the Conference?

YES: 40 No: 19

Question 5: Prioritize the topics that you would like to see discussed during training workshops.

RESULTS:	First Priority:	Problem Solving
	Second Priority:	Taxon Specific Training
	Third Priority:	Behavior Shaping Plans
	Fourth Priority:	Training Principles

Question 6: What AMB Committee activities did you attend during the Conference?

Training Workshop: 30 attended Video Night: 34 attended

Question 7: Did these conference activities meet your needs? Why and why not?

Positive responses emphasized the value of sharing ideas that occurred. Delegates found the definitions of terminology and record keeping techniques that were shared to be beneficial.

Negative responses found the workshop to be too basic, without enough emphasis on taxon specific issues and problem solving. Another complaint was that the workshop conflicted with other Zoo Day activities and tours.

Question 8: What other activities would you like the committee to offer at conferences?

Many different responses were received. Again, taxon specific training and problem solving was addressed. More videos of actual training sessions, and even live animal training were requested. Some delegates requested a beginner level, as well as an advanced workshop, and the possibility of roundtable discussions at the next conference.

Question 9: In what other areas would you like the ABMC to direct our efforts?

Coordinating efforts with AZA and its various TAGS, and encouraging them to approve training was just one of many thoughtful answers. Requests for small informal training groups, a troubleshooting reference list of contacts, lists of delegate’s individual training specialties, and a forum for problem solving all indicated a desire for more attention to individual training issues. Other needs included more topics on “show” training, as well as a list of commonly trained behaviors. Keepers indicated a need to encourage zoo management to incorporate and promote training, not only by keepers, but also by veterinary staff, and even volunteers where practical.

The ABMC would like to thank all the delegates who participated by turning in completed surveys at the Conference. We will always welcome input from the membership in the future as we continue to determine how to best serve AAZK’s needs. Any of the committee members can be reached through Beth Stark (Committee Chair), at the Toledo Zoo, (419) 385-5721, Bethstark@toledozoo.org.

How Many African Great Apes Still Exist?

Common Chimpanzee	(<i>Pan troglodytes</i>)	187,000
Western Chimpanzee	(<i>P.t. verus</i>)	24,000
Nigeria Chimpanzee	(<i>P.t. vellerosus</i>)	5,000
Central Chimpanzee	(<i>P.t. troglodytes</i>)	62,000
Eastern Chimpanzee	(<i>P.t. schweinfurthii</i>)	96,000
Bonobo	(<i>Pan paniscus</i>)	40,000
Western Gorilla	(<i>Gorilla gorilla</i>)	94,000
Western Lowland Gorilla	(<i>G.g. gorilla</i>)	94,000
Cross River Gorilla	(<i>G.g. diehli</i>)	200
Eastern Gorilla	(<i>Gorilla beringei</i>)	17,000
Mountain Gorilla	(<i>G.b. beringei</i>)	300
Grauer’s Gorilla	(<i>G.b. graueri</i>)	17,000
Bwindi Gorilla	(<i>G.b. subspecies unknown</i>)	300
		[Total: 449,800]

Source: Zoo Atlanta’s Africa Biodiversity Conservation Program, Nairobi, Kenya, May 2000
Found on ZooNews Digest from Peter Dickinson



Conference 2001

Toronto, Ontario, CANADA
September 30th to October 4th, 2001

The Southern Ontario A.A.Z.K. Chapter and the Toronto Zoo invite you to attend the International A.A.Z.K. Conference from Sept. 30th to Oct. 4th, 2001. The Toronto Colony Hotel in downtown Toronto will be the site for the meeting. Room rates are \$142 (approx. \$95 US) for singles/doubles, \$157 (\$105 US) for triples and \$172 (\$115 US) for quads.

FIRST CALL FOR PAPERS

Deadline for abstracts: June 1st, 2001
Deadline for papers: July 15th, 2001

Make sure to take into consideration extra time for mail to reach Canada from the U.S.

Our theme this year, "*amoebas to zebras....a species odyssey*" is about diversity. We are looking for a range of presentations representing not only mammals but also birds, reptiles, amphibians, fish and invertebrates. We also need topics relating to husbandry techniques, training, enrichment, exhibit design, education, zoo related in-situ conservation, captive breeding and reintroduction, etc.

Abstracts must include the following information:

- Name of presenter and co-authors
- Zoo or aquarium affiliation
- Position or title
- Title of paper or workshop
- Short bio of yourself (for introduction)

Please limit abstracts to one or two paragraphs. Abstracts must include in detail the significance of the topic to be presented along with the results, conclusions, or benefits of the work described. Poorly written abstracts or those not containing the proper submission information will be returned.

Submit one copy of abstract to:

Charles Guthrie
Southern Ontario AAZK Chapter
Toronto Zoo
361A Old Finch Avenue
Scarborough, ON Canada
M1B 5K7
E-mail: ecole@zoo.metrotor.on.ca
Fax: (416) 392-4979
Phone: (416) 397-9055

And one copy to:

Jeff Phillips
National Programs Chair
136 Harpersfield Street
Davenport, FL 33837
E-mail:
jeff_phillips@worldnet.att.com
Fax: (407) 939-6391

For more information visit our website at <http://aazktoronto.tripod.com> or contact Lesya Pedden at aazk2001@zoo.metrotor.on.ca.



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Zoo Curator
Frank Buck Zoo, Gainesville, TX*

Question

Can attitude make a difference before, during, and after a crisis situation?

Comments

It seems that I am asked this question at least once a year. As a result, I have decided to go into a little more depth than usual on this subject. When I first started out in animal management, it was as a wildlife biologist. Field biologists are focused, driven individuals. So much so, that when you get a group of us together, we can often start and finish each other's sentences. It's actually pretty scary when you think about ten people working next to each other in a lab doing this. When I first entered the zoological profession many years ago, I was startled by the diversity of personalities. They ran the spectrum from totally liberal to arch-conservative. This was a considerable shock at first in terms of communication. Over the years I have learned that while this diversity of personality types can lead to interpersonal conflict and internal politics, it is also our greatest strength. Conflicting attitudes provides an atmosphere for creative thought. Think about it - if we all agreed, we would be working in a vacuum. A unified vision of conservation is what touches our collective souls and makes us greater than the individual contribution to our profession. However, that contribution is fueled by our individual perception of what conservation means. The end result is that individual perception is not only our greatest strength, but our greatest weakness as well.

Perception, that's the key word. It translates through our senses and shapes a person's attitude. As a result, it is inevitable that each person reacts differently to each situation due to his or her state of mind. Okay, let's talk about state of mind in relation to the original question. Take it as fact, attitude can shape the events before, during, and after a crisis management situation. In addition, take it as fact that an individual psychology can influence a group and conversely, the psychodynamics of a group can influence the individual.

Let me take a classic example of this situation. Recently, I was speaking to a colleague at a facility. In reviewing his crisis protocol with me, he was absolutely sure that it would handle any situation favorably. Mistake one, nothing is perfect. Mistake two, no operational plan survives first contact, ask the military, they understand this. As a result, the facility and the senior staff were convinced and had placed all surety of success in the written documentation. Mistake three. Zoological facilities should have standard operating procedures to guide the staff and they are also invaluable from a legal standpoint. However, assuming that having the SOP and weapons on site will prepare a staff for response to a crisis is like "whistling pass the graveyard". Written procedures are the beginning of the process, not the end result. They are then tempered by extensive training and the greatest teacher of all, experience.

With that thought in mind, let's return to the original question point by point. The attitude of the individual is critical to the prevention or occurrence of a crisis. The level of training an animal manager receives will directly influence that person's abilities. Example, the vast majority of crisis incidents occur due to "keeper error". In my experience, this is usually due to distraction during animal duties. Whether it's personal, professional, or interpersonal conflict, the mind isn't where it should be, *on* the animals. An aggressive training program produces professionalism and the self-discipline to stay focused. Never forget, animals will always notice a difference in body posture, speech, and mannerisms. Even if you're not paying attention, they are, especially the predators. Also, don't forget Employee Assistance Programs and counseling are invaluable tools for giving someone the tools to put things in perspective, don't lose a good animal manager.

Attitude during a crisis can make or break the situation. I have been through several resolved and one poor crisis situation. It only took once for me to swear that I would never let another person jeopardize my life or my co-workers. There are three basic ways to catch a glitch in a person's attitude. One, catch it in training or on-the-job and modify the behavior. Two, prescreen individuals, (emergency responders) with a psychological profile. Three, actually go through a crisis with someone. Written protocols won't catch a problem before or during a crisis, they exist as guidelines to direct behavior and effect a resolution, training is what makes the difference. Look at the military, they never know what they may face, consequently they train for all situations. In a crisis, if someone is untrained or unable then they should be removed from the scene before they injure themselves or someone else in the process.

How an attitude is expressed after a crisis won't change the resolution, but it may change your facility for the worse, doing irreparable damage. If a crisis goes well, then let your people know it. They're animal professionals and deserve the credit. Conversely, if it goes south, then be prepared to act appropriately to the staff and the media. For the staff, be sensitive to the impact on morale, especially if someone dies. Counseling should be made available at a staff meeting to discuss the entire event, so that everyone is in the loop. Also, expect the media and be prepared, realizing the further impact that it could have on staff morale. As management, be responsible and take charge of the situation, be accountable, and above all be professional. Take care of your staff, they're the ones who make you look good, remember, it's all about attitude.

In our profession, individuality and perception can be an asset to our skills as animal managers and conservationists, and I wouldn't have it any other way. However, in a crisis we all have to be on the same page.

Next Month: What do you look for in a firearm?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF.

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

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Sale price is 20% off the Suggested Price

Previous books may still be available, with some price increases

<u>Sugg.\$</u>	<u>Sale \$</u>	<u>Item Title/Description</u>
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| \$29.98 | \$23.98 | <u>Threatened Birds of the Americas. The ICBP/IUCN Red Data Book</u> - N. J. Collar et al. - This volume covers in full, the threatened species of Latin America and the Caribbean, and in summary form, species of North America and the Eastern Pacific Islands. Each species account includes sections on distribution, population, ecology and threats to survival. 1150 pgs. hardcover |
| \$35.00 | \$28.00 | <u>Microcosmos: The Invisible World of Insects</u> - Claude Nuridsany and Marie Perennou - This offers a rare glimpse into the fascinating, hidden lives of insects. The large format book is packed with brilliantly reproduced photographs. 160 pgs. hardcover |
| \$29.50 | \$23.60 | <u>Garden Butterflies of North America: A Gallery of Garden Butterflies and How to Attract Them</u> - Rick Mikula - this a vivid portfolio of 40 of North America's most treasured and colorful garden butterfly varieties. Illustrated information on how to design and manage butterfly gardens and backyards is included. 160 pgs. hardcover |
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| \$115.00 | \$92.00 | <u>Sharks, Skates and Rays: The Biology of Elasmobranch Fishes</u> - William C. Hamlett - This revision of the classic 1922 text provides a comprehensive and up-to-date overview of these animals. This book is a valuable primary reference resource. 544 pgs. hardcover. |

To Order: List the items you are ordering along with your name and complete mailing address. Include a shipping fee of \$3.00 for the first item and \$2.00 for each additional item. Checks payable to: "AAZK Book Sale" (**U.S. Funds Only - No Cash or COD's, please**). Outside the continental United States please call, write, e-mail, or fax your request before sending any money; we will help to find the best form of shipment and lowest shipping fees.

Mail requests to: AAZK Beardsley Chapter, Attn: Linda Tomas, 1875 Noble Ave., Bridgeport, CT 06610-1600 USA; Phone (203) 394-6563; Fax (203) 394-6566; e-mail - beardsleyz@aol.com



"To Bowl or Not to Bowl"

Update from Patty Pearthree, National BFR Chair

I would like to encourage everyone's answer to be "To Bowl". Bowling for Rhinos has only been successful because of all those people who know BFR is a great deal of work, but believe in the cause. We have raised over \$3,375,000.00 for conservation world-wide and our efforts have made a difference.

There are now 26 black and 32 white rhinos (3/3/00) on Lewa Wildlife Conservancy, along with over 600 Grevy's zebra (20% of the world's population) and 1709 elephant (2nd largest population in Kenya). There are over 15 lion, wild dog and leopard including one black leopard residing on Lewa. Just outside of Lewa is 7,000 acres of land that a rancher has just placed for sale for \$1 million. It is critical that Lewa purchase this land for the sake of wildlife to have continuous areas to roam. When BFR first started, Lewa's wildlife area was only 55,000 acres. We are now looking at 3000,000 acres as common wildlife areas (Lewa plus the surrounding areas).

Lewa and neighbouring conservation areas



The word at the two Indonesian BFR support sites, Ujung Kulon and Bukit Barisan National parks, is that the country is "reasonably sedate" after the past couple years of political unrest. Ujung Kulon is continuing the rhino photo census which BFR has funded. The first six months of photo census work have produced 75 photos of Javan rhino. Twelve individuals were absolutely identified (8 male, 4 female) in 10% of the habitat. It is very exciting to get these photos as most people who have studied this species of rhino for years in the field have never actually seen one.

BFR has helped fund training and running costs of Rhino Patrol Units (RPUs) in Bukit Barisan. The cost of running an RPU is now \$17,000/year. Both parks are confronting a 15-20% increase in fuel costs. Indonesia has always subsidized fuel costs, but the new government is reducing subsidies and there is a general global increase in cost. Vehicles will need to be replaced in the near future at a cost of about \$19,000.00 each. There is a

need for more RPU's in order to cover the northern area of Bukit Barisan which is thought to be marginal habitat range for the rhino. This is where most of the poaching has occurred in the past because there currently are no patrols in this area.

The need for AAZK's Bowling for Rhinos continued support is critical to the success of all these areas. It takes a great deal of effort to hold an event each year but the results of saving rhinos (and many more species) is well worth it and everyone should be very proud of the work done in the past. Let's keep our efforts strong and see what a difference we can make together!

International Enrichment Conference 2001

The 5th International Conference on Environmental Enrichment is being hosted by the Taronga Zoo in Sydney, Australia from 4 to 9 November 2001. The conference will be held at the ANZ Conservation Lecture Theatre at the Taronga Zoo. This new theatre is an exciting conference venue sporting a view across the zoo and Sydney harbor. The conference theme is: Making Enrichment a 21st Century Priority. As the theme states, the focus for this conference is to make environmental enrichment a priority in our zoological institutions. This will be done by discussing all aspects of animal behavior in captivity—thus promoting an interchange of ideas between researchers and zoo staff—by showcasing enrichment initiatives as a stimulus to our own practices, and by looking for ways to incorporate enrichment more effectively into our operations. The program will consist of oral papers, forum discussions, workshops, and poster presentations planned around visits into the zoo for displays of enrichment in action.

The conference will end with a plenary planning session. Suggested session topics:

- Linking enrichment theory and practice
- Making enrichment a key husbandry activity
- Measuring the psychological well-being of animals
- The under-enriched taxons: Marsupial, Avian, Herpetofauna
- Enrichment in off-exhibit areas
- Innovative enrichment initiatives
- Conditioning and training as enrichment
- Enrichment and the zoo visitor.

A conference page has been added to the Taronga Zoo website (www.zoo.nsw.gov.au). On-line registration and abstract submissions will be available from January 2001, and the site will be updated regularly through 2001. Once established, this page will be hotlinked from the conference pages of *The Shape of Enrichment* website (www.enrichment.org).

For more information, contact Margaret Hawkins, Behavioural Biologist at: Taronga Zoo, P.O. Box 20, Mosman, NSW 2088, Australia; e-mail: mhawkins@zoo.nsw.gov.au; telephone: +61 29978 4615; fax: +61 29978 4613.

Once again, The Shape of Enrichment, Inc. is offering \$1,000 to the winner of our Enrichment Grant Contest. Papers relating to enrichment ideas, theories, and practicalities are judged by a panel of enrichment specialists. The author of the winning paper is invited to present the paper at the International Enrichment Conference and awarded \$1,000 to be used toward conference expenses.

The deadline for submitting your paper(s) is **20 April 2001**. More information and an official application form can be found in the August issue of *The Shape of Enrichment*. The application will be available on our website soon as well. Good luck to you all, and I hope to see you in Australia!

Valerie Hare
Co-Editor, *The Shape of Enrichment, Inc.*

ELECTION.....2001

Yes! It is once again time to elect Board of Directors for the Association. There are three positions up for election. Those positions are held by Jacque Blessington, Bruce Elkins, and Scott Wright whose terms end with the 2001 Conference. New Board members will serve a four-year term from the close of the 2001 National Conference until the conclusion of the 2005 National Conference. If you or any one you know would like to be nominated for these positions please send your forms to Sheri Leavitt, NEC Chair, UTMB Galveston, 301 University, Galveston, TX 77555-0621; or fax them @ 409-772-8453. All nominations need to be received **no later than February 28, 2001**. For information or questions, please call me at 409-772-9977 or 281-484-2217. If you have ever wanted to make a difference in AAZK, now is the time to step up to the plate and give us your best.

Duties of the Board of Directors

For a more detailed explanation of the expanded duties of the Board, refer to the By-Laws (available upon request from Administrative Offices in Topeka, KS).

- 1) Select, appoint or remove officers, committees, agents and employees of the Association, including - prescribing powers and duties.
- 2) To control and manage the Association and its property, passing upon acquisition and disbursements with approval of a majority of the Board.
- 3) To formulate policies, rules and regulations in accord with the Constitution & By-Laws.
- 4) To uphold the Constitution of AAZK and the policies of the Association.
- 5) To appear at Board meetings, to accept Board assignments and to devote the time to communications pertinent to all Board business, including answering correspondence promptly and efficiently.

Qualifications for Nomination

- 1) Nominee must be a Professional Member of AAZK, Inc. in good standing and must have been a member of the Association for at least one year.
- 2) Nominee must be presently employed as an animal keeper/attendant, veterinary technician, research technician or other personnel directly connected with the care, feeding and educational display of captive wildlife in a recognized zoological park, aquarium, animal reserve or other animal care facility in the U. S. or Canada and must have been in the zoological field for at least two years.

Nomination Procedure

1) Nominator Form:

- a. List the name of the nominee, phone, address, and institution.
- b) State in 150 words or less the reason(s) why the nominee warrants election to the Board of Directors.
- c) Nominator signs forms and mails to NEC Chairperson.
- d) Notifies nominee that they nominated him/her for the Board of Directors.

2) Nominee Biographical Form:

- a) Professional background: places of employment, length of service, titles.
- b) Membership in AAZK: National and local Chapters, number of years, offices held, involvement in activities.
- c) Educational background.
- d) Membership in Affiliate Organizations: (AZA, CAZPA, Audubon, etc.)
- e) State in 500 words or less why you would like to be on the BOD and any other pertinent information. (optional)
- f) References (one or two)
- g) Nominee signs forms and mails to NEC Chairperson.

NOTE: Candidate is ineligible for nomination if **both** the nominator and nominee biographical **forms** are not **complete** and **returned** to the NEC Chairperson **by 28 February 2001**. Send to: Sheri Leavitt, NEC Chair, UTMB Galveston, 301 University, Galveston, TX 77555-0621; or fax them @ 409-772-8453.

Nomination Form for **AAZK Board of Directors**

Qualifications for Nomination:

1) Nominee must be a Professional Member of AAZK in good standing and must have been a member of the Association for at least one year.

2. Nominee must be presently employed as an animal keeper/ attendant by a recognized zoological institution or aquarium in the U.S. or Canada and must have been in the zoological field for at least two years.

1. Name of Nominee:

Address:

Phone:

E-mail:

Institution:

Director:

2. State in 150 words or less the reason(s) why the nominee warrants election to the AAZK Board of Directors.

3. Signature of Nominator: _____

4. Form must be received by the NEC Chairperson by **28 February 2001**. Send to: Sheri Leavitt, NEC Chair, UTMB Galveston, 301 University, Galveston, TX 77555-0621; or fax them @ 409-772-8453.

Nominee Biographical Form **for AAZK Board of Directors**

1. Name:

Address:

Phone:

E-mail:

PLEASE LIST THE FOLLOWING INFORMATION

2. Professional Background: (places of employment, length of service, titles)

3. Membership in AAZK:

a) National: number of years

Activities:

b) Local Chapter(s): number of years, offices held, involvement in activities.

4. Educational Background:

5. Membership in Affiliate Organizations (AZA, Audubon, WWF, CAZPA, etc.)

6. State in 500 words or less why you would like to be on the BOD and any other pertinent information (optional/use additional paper if necessary)

7. References (one or two); give name, address and phone number where they can be reached:

8. Nominee's Signature: _____

9. Form must be received by the NEC Chairperson by 28 February 2001. Send to: Sheri Leavitt, NEC Chair, UTMB Galveston, 301 University, Galveston, TX 77555-0621; or fax them @ 409-772-8453.

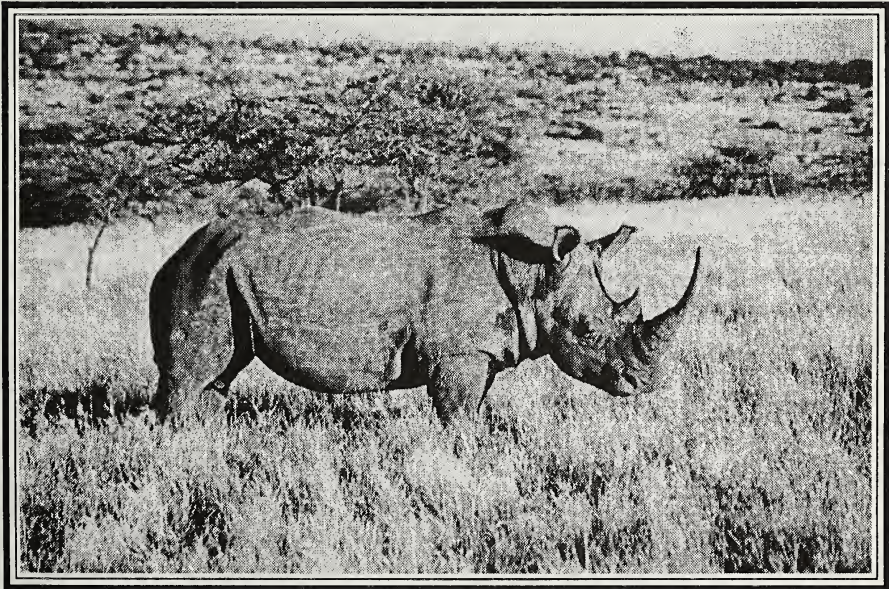
Jambo Africa

A BOWLING FOR RHINOS TRIP DIARY

As 1999 Bowling for Rhinos African trip winners Dolora and I were curious and excited looking forward to our adventure at Lewa Wildlife Conservancy. What we experienced will stay with us forever. Lewa truly is making an impact for the better.

As keepers, the first impression that an animal has good care is the attitude of its caretaker. At Lewa the staff is passionate about the rhinoceros and dedicated to its survival. Not only are the rhinos protected by a group of well-trained guards who know each animal by sight, but these individuals also know the animals' behavior and range because they are out in the bush monitoring them everyday. Truly they are animal keepers who unfortunately have to deal with poachers from time to time. Poaching is still a threat, but at Lewa they have never lost a rhino to a poacher. As of January 2000 there are 26 black and 32 white Rhino at Lewa.

As with any key species there are hundreds of smaller, lesser known animals that thrive in the same environment and benefit from the staff's dedication. Our guide Peter, a 23-year-old Masia warrior, amazed us with his knowledge of the animal and plant life within the sanctuary. We were equally amazed watching him with his fellow warriors performing their high jumps during a ceremonial Masia dance. Peter even took the time to teach us how to jump like the Masia, even though women traditionally do not jump. We were out of breath quickly compared to him, a fact he enjoyed very much. Peter took us on many game drives within the 55,000-acre sanctuary and the land would change from rocky, dry scrub brush with short whistling acacias to tall yellow fever trees standing near the swamp and streams. Sitatunga have been introduced to the swamp, and from there we could see the forest where lion stake their claim and elephant migrate to feed. Six leopards roam near the valleys and one sees larger acacia trees including a black one. Down from our cabin was a waterfall and beautiful deep valley where we saw greater kudu with young in the distance. We also enjoyed calling out "Samama", which in Swahili means "Stop", at the sight of any of the hundreds of birds both native and migratory. (I think Dolora was on a mission to see them all!!) All of this wonderful beauty under the snowcapped peaks of Mt. Kenya.



14-year-old male white rhino "Tuli" at Lewa Wildlife Conservancy



Bowling for Rhinos trip winner Brenda Gunder (l) is shown with her husband Russel, Barbara Paulson, Dolora Batchelow (other BFR winner) and their guide Peter S. Kiyaa.

The authors visited the Mutunyi Primary School, one of several local schools which are helped out by the Lewa Wildlife Conservancy through the donation of equipment and supplies.

Despite the rather primitive condition of the school, students are eager to learn and make the best with what supplies are available.

Some AAZK Chapters have collected funds to help purchase needed supplies.



What impressed us the most was not only that concern for the animals was a high priority, but also the level of involvement Lewa has with the surrounding communities. Educating the local communities in turn protects the wildlife. Lewa does this by getting to know the problems of the people. Through the starting of women's groups, a medical clinic, and work with the schools, Lewa educates the local people about the importance of saving their wildlife. Lewa is involved with five local schools all of which are very poor and teaching with the bare minimum of equipment, books, and even shelter. We visited two on one of our many ventures outside the sanctuary. The Mutunyi Primary School has over 200 students on rock or dirt floors within structures that can hardly be described as school buildings. Their exercise books are tattered from years of use as are their black boards with the writing surface peeling off. Many of the students have no shoes and come to school on an empty stomach with no lunch with them. But these children want to be there. It is a privilege to go to school, one that not all can afford. Lewa assists these schools with the basics like books, pencils, and paper.

At the high school level Lewa sponsors the top academic scorers and pays for their education, which is 30,000 KES or \$460 US for one year. To us this did not seem unreasonable but to the child's parents who are scrapping by just to feed their families this is out of their reach, so many only make it through primary school and never go on. Lewa tries to find other sponsors for the kids as much as possible. The hope this year is to send their first student on to medical school - a bright girl who otherwise would have no way to pay for her education. We would like to encourage other AAZK Chapters to become involved with Lewa through the schools. It can be as easy as sponsoring a student to starting a cultural exchange with your local schools through pen pals. The

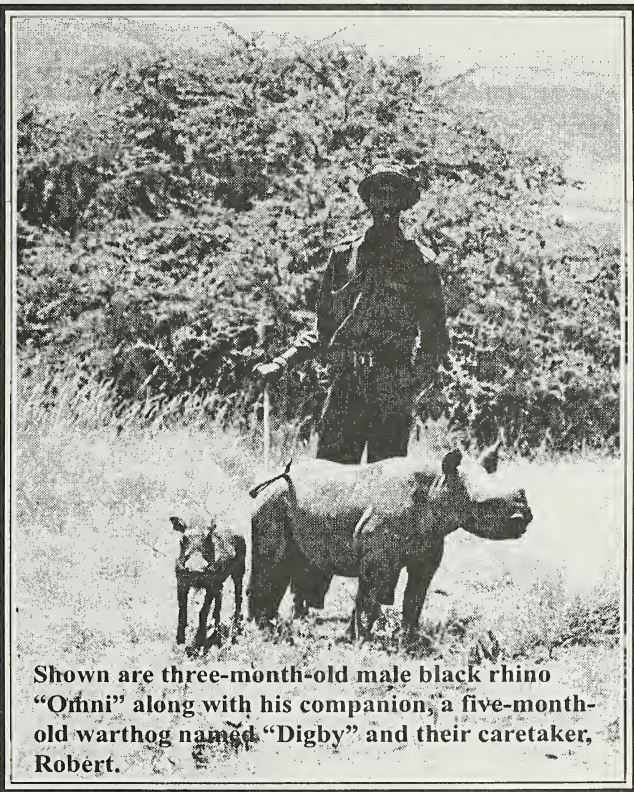
schools are in need of manual typewriters, reading books, envelopes, paper, and pencils if you wanted to take up a collection as the volunteers at Metro Miami Zoo did. Of course money for desks, buildings, water tanks, and books for each class is always welcome.

As we would sit by the fireplace at our cabin each night talking about our day and making plans for the next, we would look at each other, and after a pause would grin and say, "Can you believe we are in Africa? It just doesn't get any better than this."

Kwaheri Rafiki!

Brenda Gunder
Rolling Hills Refuge Wildlife Conservation Center
Salina, Kansas

Dolora Batchelor
Metro Miami Zoo
Miami, Florida



Shown are three-month-old male black rhino "Omni" along with his companion, a five-month-old warthog named "Digby" and their caretaker, Robert.

Please feel free to contact us for
more information at: Brenhr@aol.com

King Penguin Training at the Indianapolis Zoo

*Developed by Tammy Root, Senior Aquarist and Karen Imboden, Area Manager
Indianapolis Zoo, Indianapolis, IN*

The Indianapolis Zoo exhibits 27 rockhopper penguins (*Eudyptes crestatus crestatus*) two gentoo penguins (*Pygoscelis papua papua*), and five king penguins (*Apetenodytes patagonica*). The exhibit contains a small side and a large side with 69,000 gallons of water between them. All birds have access to both sides by swimming below the public walkway. Each bird is fed twice daily and the total amount of fish that each bird eats is recorded.

The keepers at the zoo began king penguin training in order to help keep them separate during feedings to avoid aggression to the other species and to handle them easier during a physical. When king penguins are full-grown they can be three feet tall (0.914m) and weigh approximately 30 pounds (13.6kg). The training has been continuing for the past couple of years and has been a success.

The zoo has hand-raised all of their king penguins in holding. This is where the training begins.

Initially:

1. Blow whistle as the bird is eating a fish.
2. Feed separately with one keeper per bird.
3. Continually change stations and use hand signal for "here" (which is holding your hand palm-side up and moving your fingers back and forth towards you).

Secondly:

1. Train bird to step on the scale to be weighed.
2. Use hand signal "here" and tap on the scale.
3. Reward with "good bird" and/or pat on the back.

Thirdly:

1. Condition for blood draw.
2. Use positive reward as "good job", rub down and/or towel wrap.
3. Poke just above the tail and below sacrum (in indentation) with finger (This technique was discovered by Pavlina Hajkova, MVDr., Czech Republic).
4. Then proceed with using a pen cap and then a paper clip to give sensation of needle prick.

Lastly:

1. Condition to climb ramp (to have king at height where blood draw is accessible)
2. Continue climbing to top of ramp and hold still.
3. Reinforce "needle prick" for blood draw

After the bird has moved to exhibit:

Initially:

1. Recall on small side of penguin exhibit ("bridge" is three whistle calls on exhibit)
2. Bridge for every fish for two weeks maximum, then bridge for every five fish.
3. The ultimate goal is to eliminate bridging except for recalling to small or large side of exhibit.

Secondly:

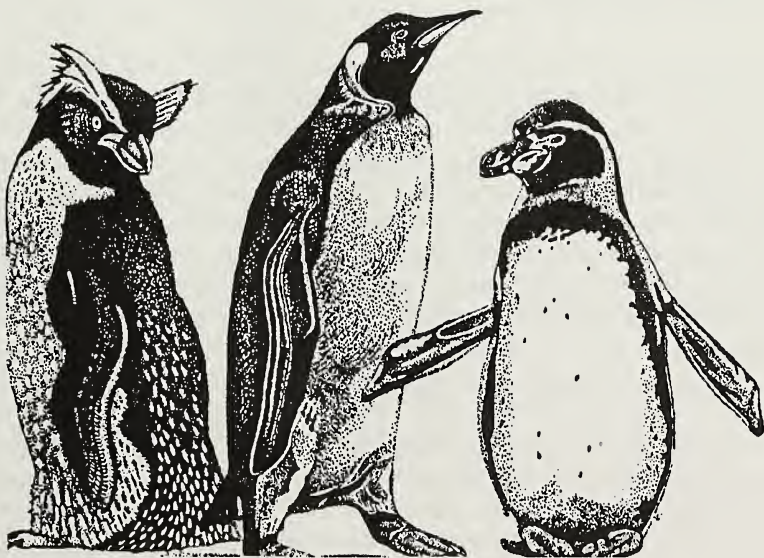
1. Recall to large side of exhibit.
2. Keeper is on large side recalling and second keeper is on small side scooting them to edge of land to jump in pool.
3. Keeper on small side of exhibit helps kings jump for one week maximum.
4. Then keeper is on large side of exhibit recalling them.
5. Once kings have made it to large side of exhibit, the trainer may need to help them up initially. (The rockwork on large side doesn't provide a "ramp" up like it does on the small side).
6. Once kings are up on large side, recall to holding and then weigh birds when time allows.
7. Once they learn to come up on large side by themselves, the trainer will recall them to small side.
8. Initially, a second keeper will be needed to help scoot them to the edge of the large side so they can jump in the water.
9. Once this is learned, eliminate the second keeper for recalling to small side.
10. Continue varying recalling to small and large side at each feed.

Lastly:

1. Continue conditioning for blood draws when time allows.

Overall, this protocol has worked very well. Keepers have been able to easily feed the king penguins without them competing with the other species. Keepers have also been able to handle these birds on a regular basis without becoming injured and taking blood from all of them only takes a few minutes. (Like the other birds, king penguins can become very aggressive during molt and breeding periods. So during this time they are difficult to handle).

As with any training protocol, the most common pitfall is the time constraint. We try to train our birds daily, but sometimes our time for this is minimal or none at all. The most time-consuming part of the protocol is trying to get them to walk up a ramp for blood draws. Unfortunately, this part of the training only occurs 1-2 times a week.





Australasian Society of Zoo Keeping

THE AUSTRALASIAN SOCIETY OF ZOO KEEPING

Eight keepers from Adelaide Zoo first formed the Australasian Society of Zoo Keeping (ASZK) in 1976. It was originally called the Australasian Society of Animal Management, which was changed to the Australasian Society of Zoo Keepers in 1980, and finally renamed the Australasian Society of Zoo Keeping in 1991. The ASZK management committee currently consists of a President, Vice-President, Secretary, Treasurer and two Committee members who are based in a number of institutions throughout Australia. Monthly committee meetings are held by e-mail to manage the business of the Society. Full membership is open to any person permanently employed in a zoological institution,

and the Society has a number of institutional, corporate and overseas members as well.

The ASZK is primarily a professional organisation which seeks to promote the exchange of information on all aspects of wild animal husbandry, and in so doing add to the conservation of rare and endangered species. The Society achieves these objectives through the production of journals, newsletters and through a series of workshops and conferences which are held throughout the region.

Since 1976, the ASZK has produced a journal called "*Thylacinus*", which provides a vehicle for keepers to disseminate the latest in captive husbandry techniques and advances. In the past, the Society has also produced a quarterly newsletter, with this having now been replaced by the "Australasian Regional Association of Zoological Parks and Aquaria" (ARAZPA) newsletter as part of trial partnership arrangements between the two organisations. The Society is also responsible for maintaining a directory of husbandry manuals produced within Australasian institutions, as part of the role of the management committee in managing the regions' "Animal Husbandry Programme".

The ASZK held its first national conference at Melbourne Zoo in 1978, and has held an annual conference every year since then. In 1990, the first joint conference was held in conjunction with ARAZPA, with joint conferences continuing to be held today as part of the trial partnership. A number of professional awards are presented by the ASZK at the annual conference, including the "Heidi Hellingman Memorial Award" for outstanding achievement in Zoo Keeping by an individual. More recently, the ASZK has held a number of "Keeper Workshops", usually in association with Taxon Advisory Group (TAG) meetings. These workshops are more practical in nature, and allow keepers a means of increasing skill levels, and developing networks in a smaller and more informal environment than the annual conference events. Workshops tend to have a specific theme, with some of the past workshops held concentrating on mammals, monotremes & marsupials, birds, and a behavioural enrichment workshop to be held early next year.

Recently the Secretary and Vice President of ASZK were fortunate in being invited to represent the Society at the AAZK Conference in Columbus, OH as part of an International delegation of zoo keepers. A number of discussions were held throughout this conference, and proved to be very productive in the development of an international zoo keeping network, about which I am

the Society at the AAZK Conference in Columbus, OH as part of an International delegation of zoo keepers. A number of discussions were held throughout this conference, and proved to be very productive in the development of an international zoo keeping network, about which I am sure you will hear more in the coming months. Sincere thanks are extended to the AAZK in supporting our attendance at this meeting.

Because of the relatively small number of people who work in the zoo industry in the Australasian region, the Society has a relatively small membership, with current membership standing at just under 200. Because of the small membership size, the amount of resources available to the Society are also somewhat limited, and so the vast majority of work produced by the Society is undertaken in a voluntary capacity, with no paid staff currently being employed by the organisation. The ASZK currently has 15 Branches throughout the Australasian region, which promote professional development within their own institutions, and raise funds for conservation projects of local interest. One such project currently being developed by the Perth Zoo branch is an animal handling video.

In 1995 the Society established a Conservation Grant, for use in captive wildlife related conservation projects which require funding outside of what the institution can provide. In addition, the ASZK has raised funds in the past which have been contributed to the AAZK's "Bowling for Rhinos", and assisted in the captive management of Tree Kangaroos in Papua New Guinea.

For any further information about the work of the ASZK, or for information about joining the Society, please contact either;

Carla Srb,
ASZK Secretary,
csrb@zoo.org.au

or

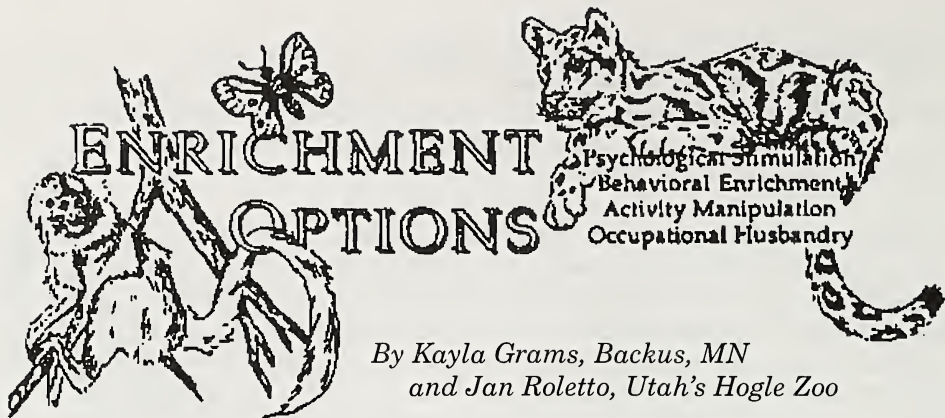
Geoff Underwood,
ASZK Vice President (currently acting President)
geoffatwork@bigpond.com

French Zoo Seeks Keeper Exchanges

The Paris Zoo (France) would be interested in a 2-3 week keeper exchange program with zoos from the USA. The Paris Zoo would welcome keepers from participating institutions and would offer housing during their stay in Paris. Keepers from both institutions will learn and work with other keepers. Our collection includes large mammals (elephants, large ungulates), primates (specially rare lemurs including Aye Aye and Sifakas), carnivores and birds. We have 43 keepers working at the zoo in five different departments: Bovids/giraffes, big rock/ big cats, elephants/bears, lemurs, Monkeys/zebras.

Interested institutions can contact: Alexis Lécu or Florence Ollivet, Parc Zoologique de Paris, Service Vétérinaire, 53 Avenue de St Maurice, 75012 Paris, FRANCE

Tel 33 1 44 75 20 00
Fax : 33 1 43 43 54 73
E-Mail : pzpveto@mnhn.fr



*By Kayla Grams, Backus, MN
and Jan Roletto, Utah's Hogle Zoo*

This month, the column will be saying goodbye to a longstanding editor and welcoming back a former editor. Gretchen Ziegler, co-founder of the column, will be stepping down to pursue other career challenges. We wish her well and thank her for all she has contributed to the column and enrichment throughout the years. Kayla Grams, former editor and co-founder of the column, is returning after a brief hiatus out of the country. We are happy to have her back. Jan Roletto will continue her role as co-editor for the column and we are looking forward to another year of great enrichment ideas!

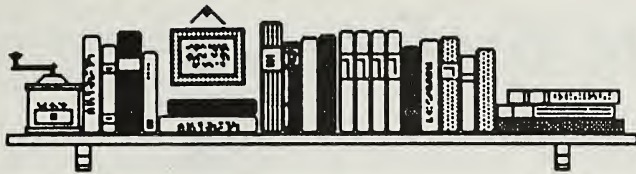
Enrichment Options ART Contest

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!

Your design can include the Enrichment Options, title or it can stand alone. All designs should be **Grisp. black and white. and clear!** Keep in mind the dimensions of the current column heading. Submissions should be black pen and ink for best reproduction quality.

Deadline for submissions is **1 April 2000**. Be creative! Send your submissions to the AAZK Administrative Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn. Enrichment Options Art Contest.

**Visit the AAZK Enrichment Website - www.enrich.org/aazk or
to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich**



Book Review

A Veterinary Guide to The Parasites of Reptiles. Volume 2: Arthropods (Excluding Mites).

By Susan M. Barnard and Lance A. Durden Copyright 2000

Krieger Publishing Company, P.O. Box 9542, Melbourne, FL 32902

298 ps. Cloth \$46.50

ISBN #0-89464-908-6

*Reviewed by Diane Callaway,
Supervisor of Reptiles and Amphibians
Omaha's Henry Doorly Zoo, Omaha, NE*

The second volume of *A Veterinary Guide to The Parasites of Reptiles* is an easy to use, resourceful guide for anyone working with reptiles, either professionally or as a hobbyist.

The main focus of the book centers on ectoparasitic arthropods known to have affected reptiles, with the exception of mites. (Mites will be included in a separate volume, which will be added to the series in the future.) In this book there is a general overview on the orders Hemiptera (true bugs) and Siphonaptera (fleas), with the main emphases on Diptera (flies, midges and mosquitoes) and Parasitiformes (ticks).

The flies section covers eight families and 26 genera, and the largest section of the book is composed of the ticks, covering one superfamily and 2 families for a total of eight genera. For both of these comprehensive sections, there are easy to use keys for specimen identification, as well as detailed anatomy sketches, and black and white specimen photographs of adults. Life cycle charts are included, as well as keys and sketches to some of the larval forms. Specific examples of parasitism and known or suspected disease transmission are listed for some species of reptiles.

Included in this volume are two brief sections on the treatments used for reptiles for tick and fly infestations, and a resource listing for products. A more detailed section on laboratory procedures should prove useful for obtaining equipment, preparing specimens for mailing, and collecting and killing specimens. Preservation and mounting techniques as well as preparing microscope slides and various medium recipes are also included.

The last part of the book provides a good seventeen-page reference, listing each reptile by its common and Latin name along with their known parasites. An extensive glossary of terms and an excellent reference list complete the book.

In short, the second volume of *A Veterinary Guide to The Parasites of Reptiles* is a valuable reference tool, especially for identification of flies and ticks. A must have for anyone working with reptiles!

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



India Bans Opening New Zoos

The Supreme Court of India has issued a ban prohibiting the opening of any new zoos without permission from both the Court and the Central Zoo Authority. The Court based this decision on the “pathetic condition” of zoos across the country. The issue arose in conjunction with a public interest lawsuit filed by a conservationist who claimed that poaching and hunting of tigers in the reserve forests of national parks and sanctuaries was out of control.

The Court additionally decided that it would take on supervision of the ways and means of protecting tigers in the wild as well as in captivity. Moreover, the Court also directed the officers in charge of existing zoos to file status reports on all animals in their collections so that the Court could review matters with an eye towards controlling the operation of existing facilities. *Source: The Times of India Online 21 November 2000*

Game Capture Safaris Expanding in Africa

Game capture and relocation plays a crucial role in conservation. In South Africa, for example, there has been a significant increase in the number of private game ranches in the past decade, which has resulted in a need to keep wild animals carefully distributed in their natural habitats, based on the land's precise carrying capacity. Due to this, the South African government has endorsed companies to provide tourists the ability to travel with professional wildlife capture and relocation teams, while still enjoying luxury accommodations. This year's safaris took place in the Kwa Zulu Natal and Northern Provinces of South Africa. Now, there is a plan afoot to expand the safaris into Botswana and South Africa's Northern Cape in 2001.

The South African National Parks Service (SANPS) has taken the position that such activities are not in the best interest of the animals. “I think we are on a slippery slope,” said Piet Morkel, a game capture veterinarian for the SANP. “There is always stress when you are capturing animals, but when you involve people who are not doing this full-time, you increase the risk and you allow your standards to drop,” he said.

On the other hand, a spokesperson for the Kwa Zulu Natal Nature Conservation Service (essentially a non-governmental organization) believes that this concern is unwarranted as long as the welfare of the animals is top priority and groups are kept small.

The safaris are a way to generate income for conservation in the area. The primary safari company operating at this time, vdH Classic Safaris, donates a percentage of its profits to foundations such as the Wildlife Society of South Africa and also pay a conservation fee to the game capture fee. A spokesperson for vdH Classic Safaris stated that: “Overseas visitors want a more active experience and I think there is also a request for a deeper knowledge of the animals themselves, which is what we provide. It is an emotional experience for all our guests.” *Source: Discovery.com Travel News; Discovery Communications, Inc. 10 November 2000*

Hoof & Mouth Disease in South Africa Subject of Gov't Regulations

The Department of Animal Health (DAH) in South Africa is cooperating with the Kwa

Zulu Natal Wildlife Park to help eradicate foot and mouth disease present in the park. All animals with cloven hooves are susceptible, whether they are domesticated or wild.

A spokesperson on behalf of the DAH stated that the disease is rampant throughout the province and is spreading in a rapid fashion. He called upon members of the game industry and non-governmental conservation organizations to work together to combat the threat posed to wildlife and domestic animal stocks. At this time, the DAH is concentrating its work on buffalo since they are known to be carriers of the disease without showing overt symptoms. *Source: WildNet Africa Media Release 22 November 2000*

WWF Produces Pollutants Map for Governments Negotiating Treaty

The World Wildlife Fund (WWF) has just produced a map demonstrating the global threat and reach of “Persistent Organic Pollutants” (POPs). The map was presented at the fifth and final negotiating session for a global treaty on POPs held in Johannesburg in December. The “Toxic Hot Spots” map uses ten of the hundreds of examples of toxic contaminants around the world to represent the pervasive nature of POPs. Some of the ten locations are Midway Island, Pakistan, Russia, Florida, and British Columbia, Canada.

The POPs are a particularly dangerous class of chemicals because of four common characteristics: they are toxic; they resist the normal processes that break down contaminants in the body and in the environment; they accumulate in body fat and are passed from mother to fetus in the womb; and they can travel great distances on wind currents.

The representatives to the treaty negotiations have been working to draft an agreement that will reduce the threat of the target chemicals. However, WWF takes the position that the nascent treaty must make elimination – not management – of chemicals as polychlorobiphenyls (PCBs) and dioxins as its central goal. WWF goes even further to press the position that if the treaty is to be truly effective, it must adopt “precaution” as a guiding principal. In effect, if there is even some scientific evidence that an activity/chemical threatens wildlife or human health, action to remove it from the marketplace should be taken “even in the absence of full scientific certainty.”

However, WWF and the treaty negotiators also recognize that the benefits of some of the POPs may outweigh the burdens in certain circumstances. For example, DDT – one of the targeted POPs – is used for control of mosquitoes carrying malaria. All of the parties seem to believe that exemptions, such as the one for DDT use, should be available on a case-by-case basis. *Source: WildNet Africa Media Release 4 December 2000*

Baboons “Kidnapped” in Tanzania for Medical Experiments

The British Union for the Abolition of Vivisection (BUVA) recently announced grim findings regarding its investigation into olive baboons (*Papio anubis*) native to Tanzania. The organization’s recent report states that the baboons are being “kidnapped” in traps and then sold to primate dealers, who in turn sell them to research laboratories. BUVA believes that the trade is in violation of CITES on the basis that the baboons are being mishandled and are at great risk injury, disease and death.

The evidence gathered by the BUVA investigators also showed that the animals, once caught by the trappers, would be roped to trees and left for up to three days waiting for the dealers to collect them. At one Tanzanian holding station the baboons are kept in small, dark and poorly constructed crates, some of which have wire floors. The investigators reported little evidence of water or food.

The typical procedure followed by those in the baboon trade is to receive a confirming order from an overseas laboratory and then transport the baboons by truck to either

nearby Kilimanjaro airport or another airport approximately 10 hours drive away. Most orders come from the United States, Russia and Yugoslavia. Baboons are used by labs conducting experimental xenotransplantation – the transplanting of cells and organs between species.

Until this year most baboons were supplied by Mann & Miller, a company operating in Kenya, with only a small number of animals originating from Tanzania. However, after the BUVA's research was published in a prominent newspaper the Kenyan Wildlife Service suspended the company's export license. Now laboratories have turned to neighboring Tanzania for baboon supplies.

BUAV has presented its findings to governmental authorities in Tanzania and the government says that it is investigating the matter. BUAV believes that Tanzania will follow Kenya's lead and suspend the export license of the companies concerned, since the negative publicity could harm Tanzania's tourist trade. Unfortunately, BUAV believes that since the demand for baboons continues at such a high rate, laboratories will turn next to other countries, such as Ethiopia, which are less dependent on tourist goodwill.

Source: The Mail & Guardian Newspaper 10 November 2000

Migratory Bird Commission Approves Funding for National Refuges

The Migratory Bird Conservation Commission (under the supervision of the Department of the Interior) meets three times each year to approve proposals for funding. It gets its money from sales of the Federal Duck Stamps, import duties collected on arms and ammunition, right-of-way payments to the refuge system, and receipts from national wildlife refuge entrance fees.

Funding for land acquisitions approved at the most recent meeting include:

Arkansas wetlands that provide nesting grounds for the largest flocks of mallard ducks in the United States;

Maine land that is already part of a wetlands complex but which is threatened by residential development. The new tract will protect important waterfowl and migratory bird habitat including that for the black duck, osprey, and common loon;

Mississippi bottomland hardwood forests which provide a home to mallards, pintails, wood ducks and blue-winged teal;

New Jersey low wooded wetlands for migratory waterfowl, shorebirds, raptors, woodcock and neotropical migrant songbirds. Additional land on the coastal marshes of New Jersey have been acquired to provide winter habitat for 30 to 40 percent of the Atlantic Flyway black duck population as well as migration habitat for millions of other birds migrating through the Cape May peninsula;

Oregon land, adjacent to an existing parcel of a national refuge, which contains one of the largest freshwater marsh areas in the country. The refuge is a key breeding and migration in the Pacific Flyway and provides a permanent habitat for a variety of waterfowl including shore and marsh birds, Canada geese, redheads, canvasbacks and dabbling ducks.

All in all, 38 grants were made for land in a number of states in this country along with an additional seven projects in Mexico and another 12 in Canada. The money for the Mexico projects will go to habitat restoration, management and educational projects. These grant funds totaled nearly \$1 million and will be combined with \$1.13 million provided by the Mexican government. Likewise, the grants to Canada total over \$9

million matched by almost \$17 million in partner contributions, helping to restore and protect thousands of acres of wetlands used by waterfowl and other migratory birds to breed and rear their young in Canada before wintering in and migrating through the U.S. *Source: U.S. Fish and Wildlife Service News Release 27 November 2000*

USFWS Suspends New ESA Listings

USFWS Director Jamie Rappaport Clark has ordered the USFWS to immediately stop listing any new species under the ESA until at least October of next year according to an Associated Press report. The agency, which has consistently requested insufficient funding from Congress, now claims that lawsuits, (advanced by environmentalists to force the USFWS to designate critical habitat), have so depleted their budget that they cannot fulfill their other legal requirement to list species in a timely manner. According to ESC Executive Director Brock Evans, "This cynical move by the very agency which is supposed to be the guardian of our country's wildlife could amount to a death warrant for the 25 species now awaiting their chance of rescue." *Source: GREENLines Issue #1264 m11/27/00*

Marine Conservation Laws Renewed

According to Reuters News Service, President Clinton has signed laws reauthorizing the Marine Sanctuaries Act and "strengthening" the Coastal Barrier Resource Act. The MSA "protects 13 sites around the country, including Florida's fragile coral reefs, lush kelp forests off Monterey Bay and the Channel Islands, as well as nursing grounds for Hawaii's humpbacked whales." The CBRA bars federal subsidies for development of barrier islands which the President says benefit fisheries and endangered species. *Source: GREENLines Issue #1264 m11/27/00*

Mexico Moves to Protect Monarchs

The Mexican government has moved to "link several existing mountaintop nature reserves in a continuous corridor" that provides protection for habitat vital to wintering monarch butterflies. Mexico is also "adding a 100,000-acre buffer zone around the current 40,000 acres reserve" and along with the World Wildlife Fund and Mexican Fund for Natural Conservation establishing a \$5 million fund to compensate communities for lost logging revenues. The move comes after a study revealed "44% of the fir forests that shelter the migrating butterflies" have been lost in the last three decades. *Source: GREENLines #1258 11/14/00*

U. S. Butterfly Gets 26,000 Acres

"Under pressure from environmental groups" the USFWS has moved forward and proposed the designation of 26,000 acres in California's San Mateo and Santa Clara counties as critical habitat for the Bay checkerspot butterfly says the *San Francisco Chronicle* 11/4. Already in dire straits, the threatened checkerspot has been extirpated from many areas of its serpentine soil habitat such as Stanford's Jasper Ridge Biological Preserve. First listed in 1987, the critical habitat proposal came as a result of a court order responding to a Center for Biological Diversity lawsuit, one of six filed in the last two years to protect habitat for 14 California species. *Source: GREENLines Issue #1261 11/20/00*

Shark Finning Banned

Legislation to ban the practice of shark finning, "cutting off a shark's fin and throwing the dying fish back into the sea," has cleared Congress according to an Associated Press report of 12/8. The bill which is expected to be signed by President Clinton would make it illegal "to enter an American port or operate in the 200-mile U.S. federal" waters while "carrying shark fins without the carcass" and is primarily targeted toward Pacific fishing boats that supply the fins to the Asian market. The bill also would study ways to "minimize incidental catches of sharks." *Source: GREENLines Issue #1274 12/11/00*

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks / AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@kscable.com < We are no longer located at the Topeka Zoo, so please note new address!*

ZOOKEEPER ...We are looking for an energetic person with at least one (1) year paid experience. This person will be required to work independently to help care for a diverse collection of mammals, birds, and reptiles. The person selected will also be required to do animal presentations to our visitors, and be able to communicate to them, both in an individual and group setting. We offer a competitive salary, paid insurance, sick days, and vacation. A degree in zoology or biology is preferred. Summer positions are also available. Send or e-mail a resumé to : Vince Hall, Claws 'N' Paws Wild Animal Park, RD 6, Lake Ariel, PA 18436; e-mail vincehall@echoes.net

SENIOR ZOOKEEPER...the Cameron Park Zoo is seeking a dynamic, energetic individual who is willing to continue developing and overseeing a diverse staff and collection of animals. The primary duties of this position will be a working supervisor responsible for day to day operations, working with a staff of nine. The applicant of choice must have excellent communication skills, be motivated and have the ability to function in a team environment. Associate's degree or equivalent in management or animal care. Three (3) years experience as a zookeeper. If you feel we have described you, please apply. Salary will range from \$1457.00 - \$1970.00 monthly plus benefits. Send resumé and application (or you may fax it to number below): City of Waco - Human Resources, Senior Zookeeper Position, P.O. Box 2570, Waco, TX 76702-2570; phone - (254) 750-5740; fax - (254) 750-5737. City application may be found at this website: www.waco-texas.com

The following three (3) full-time positions are available beginning 1 March 2001 at Catoctin Wildlife Preserve and Zoo. We are looking for professionally oriented people to grow with us. For all positions, duties include all aspects of animal care including feeding, cleaning, diet prep, animal and exhibit enrichment, daily record keeping, health monitoring, interaction with the public and assistance with department improvement projects. Salary commensurate with experience. Good medical, dental and prescription benefits. Annual support for continuing education/conferences. Paid vacation after one (1) year. Flexible work schedule and personal days. Send resúmes with salary requirements to: R. Hahn, Chief Animal Person, Catoctin Wildlife Preserve and Zoo, 13019 Catoctin Furnace Road, Thurmond, MD 21788. Information about our facility may be viewed online at www.CWPZoo.com

AVIAN SPECIALIST...works primarily with psittacines and gallinaceous birds, flamingos, ibis, kookaburra, mudhens, condor and cranes. At least two (2) years in a private or public facility maintaining and breeding the above taxa. Knowledge of incubating eggs and rearing chicks required. Reports to lead animal care.

POLIKILIO THERM SPECIALIST...works with herps and invertebrates. Collection heavy with tortoises and boidae. Some venomous and lizards. Few colubrids, amphibians and invertebrates. At least four (4) years with diversified collection. Breeding experience a must. College degree, extensive herp reproductive and exhibitry experience a plus. Reports to lead animal care.

GENERAL CURATOR of the Animal Collection...supervises the above positions plus Registrar, Lead Animal Care, Vet tech and all Animal Care specialists' positions including volunteers and seasonal interns. Coordinates with other department heads to forward the mission of the facility. Must be knowledgeable in the husbandry of all taxa, well-organized and able to work well with all staff and visitors. Must have at least six (6) years experience in a professional zoo situation with at least three (3) years of supervisory experience in middle management. Must be capable of finishing the standard requirements of this position description. Support to a national or international conference included in perks. Reports to Chief Animal Director.

SEAWORLD SAN ANTONIO EDUCATION DEPT. INTERNSHIPS...Announcing 2001 Education

Internship Program for students seeking degrees in education, sciences, recreation or tourism. There are three types of internships available: 1) Instructional Internships 2) Camp SeaWorld (Day Camp) Internships and 3) Adventure Camp (Residential Camp) Internships. Internships are available from three to ten months. For further information and to obtain an intern information/application packet please contact: SeaWorld San Antonio Education Dept., Internship Program, 10500 SeaWorld Drive, San Antonio, TX 78251-3002 or call 1-800-700-7786.

LARGE MAMMAL ZOOKEEPER...seeking a qualified individual to work in the Large Mammal Department, in either the Elephant or Large Carnivore area. Minimum requirements: graduation from a recognized college or university with an associate degree in biology, animal science, zoology, or wildlife management and two (2) years experience working with large mammals or related animal experience. Under general supervision responsibilities include, but are not limited to: animal care, feeding, and observation, record keeping, exhibit maintenance, behavior enrichment, animal training, and assist veterinary staff as necessary. Applicant must have good communication skills, willing to work as a team, and interact positively with the public. Applicants must be willing to work weekends, holidays, and overtime. Starting salary: \$11.86 per hour, plus excellent benefits. Send resume by **31 January, 2001** to Karen Dunn, Large Mammal Curator, Tulsa Zoo, 5701 E. 36th St. N. Tulsa, OK 74115 or email to Karendunn@ci.tulsa.ok.us

PRE-VET FELLOWSHIP.. Seneca Park Zoo offers a funded, ten-week, summer pre-vet fellowship for college students. The pre-vet fellow will receive a stipend of \$250.00 per week. The pre-vet fellow will assist the veterinary staff in all aspects of the veterinary care program, will complete a retrospective or cross-sectional research project jointly identified by the fellow and veterinary staff and will rotate through all animal care sections of the zoo. Minimum qualifications include: completion of at least two years of study in a pre-veterinary college curriculum, at least a 3.0 GPA and at least 100 hours of experience in a large and/or small animal veterinary hospital. For an application and more information, please contact Dr. Jeff Wyatt, Seneca Park Zoo, 2222 St. Paul Street, Rochester, NY 14621. e-mail: gcaulkin@mcls.rochester.lib.ny.us. The application deadline is **28 February 2001**.

ZOO SENIOR ANIMAL KEEPER 76 (CLASS. 12438)...qualified applicants must have high school education or equivalent and three (3) years of experience with animal care. Additional education and experience are strongly recommended. Salary range is \$22,964.00 to \$29,448.00 annually. Responsibilities include feeding, cleaning, behavioral observations; assisting in zoo research and veterinary procedures; restraint techniques; quarantine and sanitation procedures; record keeping and pest control. Positions may be in the mammal, bird, children's zoo or veterinary departments. Positions are subject to drug and alcohol testing. Negative TB test required. Interested individuals must submit an application/resumé by **9 February 2001** to: City of Dallas, Human Resources Department, Staffing Manager, 1500 Marilla St., Room 6AN, Dallas, Texas 75201. Equal Opportunity Employer, M/F/D. Please indicate on your resumé that you are applying for the ZOO SENIOR ANIMAL KEEPER 76 (Class. 12438) position at the Dallas Zoo.

ZOO KEEPERS (MAMMALS, BIRDS, HERPS, FISH, INVERT)...up to 15 new keeper positions are being hired to work with a diversity of taxa. Keepers with broad generalized experience as well as those with specialized experience in beekeeping, hot snakes, bats, carnivores (e.g., bears, jaguar, puma), shorebirds, raptor/bird shows, saltwater aquaria/touch tanks are encouraged to apply. Responsible for providing animal care, monitoring animal health, maintaining cleanliness of animal areas, and minor exhibit modification. Staff will also provide public interaction in both formal and informal presentations. Positions require a high school diploma or equivalent, one-year zoo keeping experience, good communication/organizational skills, and ability to work well with others in a team environment. Starting salary \$11.01/hr., plus benefits. **Positions are open until filled.** Send letter and resume to Assistant Human Resources Director, Fort Worth Zoo, 1989 Colonial Parkway, Fort Worth, TX 76110.

*Positions posted with AAZK, Inc. may also be found
on our website at www.azk.org*

*Also, you may want to check out the AZA Member Institution
job listings at <http://www.aza.org>*

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AAZK Membership Application

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**American Association
of Zoo Keepers, Inc.
3601 S. W. 29th St., Suite 133
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The Journal of the American
Association of Zoo Keepers, Inc.
February 2001

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Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX (785) 273-1980

FEBRUARY 2001
Vol. 28, No. 2

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Zoo Infant Development Project - Nell Bekiares, Cincinnati Zoo (Birds/Passerines)

Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

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About the Cover.....

This month's cover features the African Lion (Panthera leo) "Elihu" drawn by Amy Burgess, a keeper at the Oakland Zoo, Oakland, CA. The basis of a resident pride is a group of female lions and their young. Groups of males or a single male will join the female group for an indefinite period and defend the pride against the approach of outside males. The male lion's mane serves to protect the neck during intraspecific fighting. Lions are native to the plains of East Africa and are the most widely recognized predator, hunting many species of hoofstock including antelope, zebra and gnus. The females do most, but not all, of the hunting and are known to hunt cooperatively. All females within a pride are usually related. Thanks, Amy!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white **or** color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to Animal Keepers' Forum will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKF. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$3.00 each.

E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com< You may reach Susan Chan and Animal Keepers' Forum at: akfeditor@kscable.com<

**AAZK Website Address: www.aazk.org
Bulletin Board Access: type "aazk" in member name box;
type "Elvis" in password box.
BFR Website: <http://bfr.aazk.org>**

Scoops & Scuttlebutt



AAZK Endowment Fund Contributions Continue

The Honolulu Chapter of AAZK, Inc. has sent in a generous donation of \$750.00 to be put towards the AAZK Endowment Fund. The Chapter earned money through bake sales, aluminum can recycling, and sale of merchandise. The AAZK Endowment Fund is designed to make certain that the Association remains financially secure into this new century. The Board of Directors and Administrative Office staff greatly appreciate the willingness of AAZK Chapters and members to assist in the building of this fund.

Reminder to Chapters on Recharter Packets

All AAZK Chapters are reminded that the Recharter Packets for the year 2001 have been mailed and are due back at Administrative Offices **by 1 March 2001**. Chapters failing to return their Recharter Packet and recharter fee by this deadline will be assessed a late fee of \$100.00. The packets were mailed the first week in January. If you did not receive your packet, contact Barbara Manspeaker at AO immediately. Also, if you need help in getting your packet filled out properly, don't hesitate to contact Barb at 1-800-242-4519 (US) or 1-800-468-1966 (Canada).

Election/Award Nomination Reminders

Members are reminded that nominations for candidates to run for the AAZK Board of Directors are due **by 28 February 2001**. Nomination criteria and forms appeared in the December 2000 and January 2001 issues of *Animal Keepers' Forum*. Completed forms should be sent to: Sherri Leavitt, NEC Chair, UTMB Galveston, 301 University, Galveston, TX 77555-0621; or fax to (409) 772-8453.

In this issue of *AKF*, the criteria and procedure for nominating your peers for several AAZK awards is being published. This month we have covered the Jean M. Hromadka Excellence in Zookeeping Award, the Certificate of Merit for Zookeeper Education, and the Certificate of Excellence in Exhibit Renovation. Next month we will be publishing information on the Meritorious Achievement Award and the Lifetime Achievement Award. Completed nominations should be submitted to Janet McCoy, Awards Chair, at the Oregon Zoo, 4001 SW Canyon Rd., Portland, OR 97221 **by 1 June 2001**.

Rhino Keeper Workshop Scheduled at San Diego

The San Diego Wild Animal Park is planning to host a three-day rhino keeper workshop from 8-10 May, 2001. This workshop will focus on the keeper's role in the captive management of all rhino taxa and how that role can facilitate and enhance captive rhino management. The event will include both speaker sessions and active participation by attendees in working groups. The workshop is being sponsored by the Zoological Society of San Diego, and is endorsed by the International Rhino Foundation and the Rhino TAG.

For further information contact: Rhino Keeper Workshop Coordinator, c/o Farshid Mehrdadfar, San Diego Wild Animal Park, 15500 San Pasqual Valley Road, Escondido, CA 92027-7017; Tel. (760) 796-5681; Fax - (760) 480-9573; e-mail: Rhinos@sandiegozoo.org

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is

designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member **MUST** have an active role in the conservation effort submitted for consideration.

The Zoo Keeper Grants in Research – Two \$750.00 grants are funded to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator **MUST** be a full-time keeper and a member in good standing of AAZK, Inc.

Deadline for application submission for either grant option is **31 May 2001**. Successful grant recipients will be announced at the AAZK National Conference in Toronto, Canada in early October 2001. The grant cycle runs from 01 January 2001 to 31 December 2001. For further information or an application packet visit the AAZK website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committee Chair, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504; e-mail: jrsotter@iserv.net; Fax: (616)336-3709. Be certain to specify whether you are requesting information on the CPR or Research Grants.

Any AAZK Chapter wishing to consider submitting a bid to host the 2003 AAZK National Conference is asked to contact AAZK Executive Director Ed Hansen as soon as possible. He may be reached at zked9@cs.com for information on what is required to submit a bid and details on conference host responsibilities.

Deadline for completed bids is **15 March 2001**

Zoo Animal Management Correspondence Course

The National Extension College in Cambridge, England offers a correspondence course in zoo animal management. The course can be taken by anybody, anywhere in the world. To complete the full course, however, and gain a certificate at the end of it, students must be working in a zoo/bird garden/seaquarium (this could even be a part time/voluntary arrangement providing you get the hours/days in). This is essential for the assessment of the student's practical work.

The course consists of a number of written assignments, the practical assessments, a written project and a final exam. It will normally take around two years to complete.

For the practical assessments students are required to have an experienced senior member of staff agree to be their (local) zoo tutor. It is possible to take the final exam anywhere in the world as long as it is at a recognised educational institution. For further details write: National Extension College, Dept. Z, 18 Brooklands Avenue, Cambridge, CB2 2HN, United Kingdom.

Coming Events

Ecology and Conservation of Mini-Antelope - 12-17 February 2001 in Bulawayo, Zimbabwe. An international symposium on duiker and dwarf antelope in Africa. Hosted by the Marwell Zimbabwe Trust. For further information contact: aplowman@paigntonzoo.org.uk

Fourth Annual Wildlife Exhibitors and Breeders Conference 2001 - 15-17 February 2001 in Gainesville, FL. Hosted by The Lube Foundation and sponsored by The Zoological Consortium of MD, Inc. Will include field trips, talks, good food and networking with other professionals. For more information and registration materials contact Richard Hahn, 1894 Eucalyptus Ave., Arcadia, FL 34266; fax (863) 494-5408; e-mail ZOOCONSORT@DESOTO.NET< To present a talk or for program information contact John Seyjakat at (352) 485-1250, Lube Foundation, 1309 NW 192 Ave., Gainesville, FL 32908.

International Association of Avian Trainers and Educators Ninth Annual Conference - 1-4 March 2001 in Orlando, FL. For more information visit www.IAATE.org or contact Barbara Heidenreich at barbnei@aol.com or call (407) 938-0847.

13th Non-Domestic Neonatal Symposium - 7 March 2001 in San Diego, CA. For information contact Karla Michelson, San Diego Wild Animal Park; phone: (760) 735-5530, e-mail - kmichelson@sandiegozoo.org

National Wildlife Rehabilitators Association 19th Annual Symposium - 13-17 March 2001 in Lake Tahoe, CA. For more information, please contact NWRRA, 14 North 7th Ave., St. Cloud, MN 56303; phone (320) 259-4086; e-mail at nwra@nwrawildlife.org or visit the NWRRA website at www.nwrawildlife.org

German Otter Symposium - 14-16 March 2001. Hosted by the German Otter Centre in Hankensbüttel near Hanover. The 2001 seminar will cover the Eurasian otter and the Asian small-clawed otter. Seminar will cover aspects of design and construction of enclosures, husbandry, feeding and breeding guidelines. For further info contact Aktion Fischotterschutz, OTTER-ZENTRUM, 29386 Hankensbüttel, Germany; Fax +49-5832-980851; e-mail - Aktion.Fischotterschutz@t-online.de<

Second European Zoo Nutrition Conference - 6-9 April 2001 in Southampton, UK. More detailed information about the program and registration/abstract submission deadlines is available at <http://www.marwell.org.uk> To join the conference mailing list, send your contact details by email to: Nutrition2001@marwell.org or by post/fax to: Zoo

Nutrition 2001, Marwell Zoological Park, Owslebury, Winchester, Hampshire, SO21 1JH, United Kingdom. Fax: (0) 1962 777511.

The Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or contact the local hosts Andy Balustein (blaustea@bbc.orst.edu) or Lynne Houck (houck@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aav.

American Association of Zoo Veterinarians - 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of wildlife Veterinarians and the Nutrition Advisory Group. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (610) 892-4812; fax (610) 892-4813; e-mail aazv@aol.com



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AAZK Award Nominations Are Now Being Accepted for 2001

The AAZK Awards Committee is accepting nominations for the **Jean M. Hromadka Excellence in Zookeeping Award (EZ)**, **The Certificate of Merit for Zoo Keeper Education (CMZE)**, and **The Certificate of Excellence in Exhibit Renovation (CEER)** to be presented at the 2001 AAZK Conference in Toronto, Canada. The deadline for all award nominations is **1 June 2001**. Information concerning the qualifications, nomination procedure, selection procedure and an explanation of the awards may be obtained by contacting Janet McCoy, Chair, AAZK Awards Committee, Oregon Zoo, 4001 S.W. Canyon Rd., Portland, OR 97221.

Jean M. Hromadka AAZK Excellence in Zookeeping (EZ) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Jean M. Hromadka Excellence in Zookeeping Award presented by the AAZK Awards Committee. The purpose of the award is to recognize achievement and determination of an individual in the zookeeping field and in fostering professionalism. Zookeeping is a science combining zoology, biology, animal management, behavioral observation and daily record keeping on the collection of species in their care. This is essential knowledge for maintaining a species effectively in captivity. The excellent zookeeper must excel in one or more of these areas, but not be lacking in any of them.

The Excellence in Zookeeping Award was founded by John Siegel, 1974-1975 CHAIR, in 1974. The original name of the award was the Marlin Perkins Award, named after the famed zoologist who started his career as a zookeeper. The name was changed in 1978 to the EZ award. In 1990, the name was changed to the Jean M. Hromadka Excellence in Zookeeping Award in memory of her outstanding contributions to the furtherance of AAZK through committee work and as President. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee **must** be a full-time animal keeper, employed in any North American zoological institution, aquarium or related facility for at least five years.
2. The nominee **must** have been employed at least two years on permanent status at the same zoo, aquarium or related facility.
3. The nominee **must** be nominated by his or her peers who have also been employed at that same zoo, aquarium or related facility. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of peers or colleagues.
2. List and **document** commitment to the profession, outstanding achievements, practical/outstanding application of knowledge and experience, and keeper skills, etc.

Verification of these facts must be signed by the zoo director, curator, or immediate supervisor of the individual being nominated.

3. List any extra activities outside of zoo, aquarium or related facility work: working with conservation groups, youth, wildlife officials, etc.
4. Deadline for nominations is **JUNE 1st** of each year.

Selection Procedure:

The Awards Committee, consisting of five keepers, will independently review each nominee.

Certificate of Merit for Zookeeper Education (CMZE)

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Certificate of Merit for Zookeeper Education (CMZE) presented by the AAZK Awards Committee. The purpose of the award is to recognize individuals, institutions and organizations in the zoological community most actively promoting educational programs for zookeepers. Examples of such support are: reimbursements for formal education, keeper training courses and staff seminars.

The CMZE was founded by Jeff Roberts, 1976-1978 CHAIR, in 1978, to compliment the work of the AAZK Education Committee that had been formed at that time. The award is presented at the annual AAZK National Conference.

Qualifications:

1. Any staff individual, institution or organization from a North American zoo, aquarium or related facility is eligible.
2. The keeper training program must have been in existence for at least one year.

Nomination Procedure:

1. If you feel that your institution, organization or a staff individual merits such an award, please submit a letter of nomination which mentions specifically the educational programs that are offered.
2. Claims made should be backed up with documentation for the committee to review.
3. List the institution or organization's name, address, phone and Director.
4. The deadline for nominations is JUNE 1st of each year.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

Certificate of Excellence in Exhibit Design Renovation (CEER)

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Certificate of Excellence in Exhibit Renovation (CEER) presented by the AAZK Awards Committee. The purpose of the award is to recognize institutions or organizations in the zoological community for the design and renovation of existing animal facilities which involved active keeper participation in the process.

The CEER was established by Janet McCoy, 1990 CHAIR. Bill Whittaker proposed the award to the AAZK Board of Directors. The award is presented at the annual AAZK National Conference.

Qualifications:

1. Any North American zoological institution or organization is eligible.
2. The renovated exhibit must be in full operation for at least two years.
3. The exhibit must be nominated by a keeper at that same institution or organization. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List institution or organization's name, address, phone and Director.
2. **Document** local awards or commendations for exhibit, drawings, 8 X 10 color photos - no slides (2 before and 8 after), and renovated exhibit type: single or multispecies, and size.
3. **Document** keeper participation in the design and why the existing facility was renovated.
4. **Document** interface with other zoo divisions; and maintenance of exhibit after completion.
5. The deadline for nominations is **JUNE 1st** of each year.

NOTE: Materials will not be returned.

Selection Procedure: The Awards Committee, consisting of 5 keepers, will independently review each nominee.

Nominee Evaluation:

The evaluation of each nomination is broken down into four categories based on the general guidelines outlined for the award. The four categories are: Keeper Involvement, Exhibit Functionality, Exhibit Management and Visitor Point of View/ Other Information. Items the committee is looking for are the following:

A. KEEPER INVOLVEMENT:

- a) degree of keeper involvement with conceptual development of exhibit
- b) degree of keeper involvement with facilitation of completion of exhibit, (fund raising, promotion, assist with construction)
- c) contribution to educational experience (graphics, conservation message)
- d) originality - is it something new and different, or has it been tried before

B. EXHIBIT FUNCTIONALITY:

- a) versatility - indoor/outdoor, four seasons, protection from elements
- b) accommodates and encourages animal's natural behavior - climbing structures, land area, height, water
- c) hard (gunite, concrete) vs soft (grass, dirt) environments - as to animal needs
- d) sight lines valuable to animal as well as visitor - important to some animals (polar bear, chimps)
- e) physical and visual barriers for animal's use, animal safety
- f) flexible entrance/exits (hoofstock - more than one entrance)
- g) ability to exhibit natural social grouping
- h) breeding success

C. EXHIBIT MANAGEMENT:

- a) how management of exhibit interfaces with other zoo divisions (grounds, maintenance - simple repair, paint)
- b) keeper serviceability, overall maintenance of exhibit and surroundings
- c) adequate drains and properly located
- d) quality and versatility of holding areas - ease of separating animals,

moving, breeding, sick

- e) keeper sight lines - can you see animal when they come into holding or when shifting them between areas, keeper safety
- f) ease of providing time change items (browse, logs, feed, novel objects)
- g) environmental control (ease of seasonal adjustments - ventilation, heat)

D. VISITOR POINT OF VIEW/OTHER INFORMATION:

- a) educational experience (conservation message)
- b) immediate and sustained viewer interest
- c) sight lines - not see doors, drains, fencing - does it have esthetics
- d) bonus point - local awards, commendation, "wow" factor
- e) include anything else pertinent to the renovated exhibit that you think is important

The character of the award includes either a plaque or certificate, letter of notification to the institution's director and national recognition by professional journals. Such journals include: the American Zoo and Aquarium Association (AZA) and the Canadian Association of Zoological Parks and Aquarium (CAZA) Newsletters, Animal Keepers' Forum (AAZK), Awards, Honors and Prizes: Volume 1; United States and Canada. The latter is published by Gale Research Company based in Wheaton, MD and found in medium to large sized libraries across the U.S. and Canada.

Award Nominations should be submitted to:

Janet McCoy, Awards Chair

The Oregon Zoo, 4001 SW Canyon Road, Portland, OR 97221

Next month we will include information on making nominations for the Lifetime Achievement Award and the Meritorious Achievement Award.

Deadline for Nominations is 1 June 2001

ABC's

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

QUESTION

American Zoo. Could you give an overview of the use of the bridge and maybe some resources related to it?

ANSWER

Part Two of Three. Questions on this topic began last month where I discussed bridging in general and go into a few specific questions. This month will cover the balance of those submitted.

When is RIR appropriate?

First let's define what RIR is. When the acronym first appeared in the late 1970's it stood for Random and Interrupted Reinforcement. Then this changed to Reinforcers delivered Intermittently in Randomized order. Now the term seems to have evolved further into Variable Ratio with Reinforcement Variety (VRRV).

Personally I like to keep it simple. Translation? Give your animals a variety of reinforcers in a variable schedule.

Variable schedules are what I prefer to use. However, each facility will have unique challenges in using the technique. The biggest obstacles can be limited experience, variety of training skills, incomplete understanding of training applications, and the security many find in sticking to continuous reinforcement.

Each trainer or training facility has a multitude of different aptitudes and approaches that will influence the use of more intricate training concepts. Complications can result if the whole team is not using the same techniques or are not on the same page.

So, I think using variable schedules should be the normal operating mode once the trainers and animals understand the training process. Using them requires planning, communication, clarity and consistency within your team.

Are there ever times when a bridge should be delivered without being connected with a primary reinforcer?

In training the bridge, you signal that primary reinforcement is coming. The bridge is a secondary reinforcer. Therefore it is reinforcing itself and so instantly reinforces the animal.

Once you graduate beyond continuous reinforcement (the one bridge equals one treat concept) then you should be able to use the bridge without dispensing primary reinforcement in a continuous schedule.

Why? Secondary reinforcers can be as strong as the primary reinforcer. That is why we use conditioning. Other secondary reinforcers are praising, attention, tactile, social interactions and more. Okay, let's look closer at schedules since many newer trainers have a hard time understanding schedules of reinforcement.

The traditional reinforcement schedule is called a **continuous reinforcement schedule**. Each time the correct behavior is performed it gets reinforced.

Then there is what we call an **intermittent reinforcement schedules**. There are fixed and variable categories.

The **Fixed Interval Schedule** is where reinforcement is only given after a certain amount of time has elapsed. So, if you decided on a five second interval then each reinforcement would occur at the fixed time of every five seconds.

The **Fixed Ratio Schedule** is where the reinforcement is given only after a predetermined number of responses. This is often seen in behavior chains where a number of behaviors have to occur for reinforcement to occur.

The **Variable Interval Schedule** is where the reinforcement is given after varying amounts of time between each reinforcement.

The **Variable Ratio Schedule** is where the reinforcement is given after a varying number of correct responses.

Fluctuating combinations of primary and secondary reinforcers fall under other terms in the variable ratio schedule; for example, Reinforcers delivered Intermittently in a Randomized Order (RIR) or Variable Ratio with Reinforcement Variety (VRRV).

Should Variable Ratio with Reinforcement Variety (VRRV) always be used, or should it only be activated if an animal becomes bored with a primary reinforcer that initially worked well?

Your training should always be interesting to the animal. For the most interesting sessions use variable reinforcement. Stronger results and more interest is what you will reap from your animals and training staff.

If you are still depending on continuous reinforcement without using any variables and do not understand how to use more intricate training concepts start slowly or get a consultant in to help you progress.

Are there any situations where multiple bridges are delivered before the primary reinforcer is given or should it be "one-click-one-treat"?

If you are using a continuous reinforcement schedule you will give one treat for one click. So, yes there are. If you use other schedules of reinforcement, mentioned earlier, then you would be delivering multiple bridges before any primary reinforcement is given. Another situation was mentioned last month when I talked about using an intermediate bridge and a terminal bridge. The intermediate bridge is feedback for your animal when they are on the right track while the terminal bridge signals that they are done. The intermediate bridge will often be multiple bridges without delivery of the primary reinforcer.

Resources of Interest

Chance, P. 1998. *Learning and behavior*. Brooks/Cole Publishing.

Kazdin, A.E. 1994. *Behavior modification in applied settings*. Brooks/Cole Publishing.

Mazur, James. 1997. *Learning and behavior*. Prentice Hall.

Pryor, K. 1999. *Don't shoot the dog!* Bantam Books.

Rameriz, Ken. 2000. *Animal Training: Successful animal management through positive reinforcement*. Shedd Aquarium Press. (1-888-Sea Stuff)

Previous Columns of Interest

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(About the Author: Since 1978, ARKANIMALS.COM Director, Diana Guerrero has worked professionally in a variety of animal facilities. Attending and completing courses in both animal management and training from institutions both here in the United States and Europe, she has been affiliated with some of the best organizations. She is an alumni of The Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Animal Affection Training School, The International Training Centre at the Jersey Wildlife Preservation Trust, and special program extensions with Marwell Zoological Park and Kent University. Guerrero started her career in the marine mammal field working as a naturalist, and subsequently became involved with terrestrial animals in zoos and other facilities. Guerrero writes a variety of animal-related columns, including the popular series, Unusual Animal Careers and does seminars nationally. Watch for two of her book projects in the summers of 1999 and 2000! Questions for ABCs should be submitted to Diana directly via e-mail:> arkabc@arkanimals.com< or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.)

AAZK Announces New Members

New Professional Members

Eileen Jones, (no zoo listed/NY); Richard Fey and Carey Ricciardone, **The Baltimore Zoo (MD)**; Penny Cooper, **Zoo Atlanta (GA)**; Chris DeSanto, **Brevard Zoo (FL)**; David C. Shaffer, **Jungleland Zoo (FL)**; Meghan M. McNamara, **Cleveland Metroparks Zoo (OH)**; Pete Wang and Wendy L. Buck, **Akron Zoological Park (OH)**; Marilyn Crowley, **Detroit Zoological Institute (MI)**; Scott DePalma, **Belle Isle Aquarium/Detroit Zoo (MI)**; Michael Brown-Palsrove, **Lincoln Park Zoo (IL)**; James L. Duke, **Riverside Park & Zoo (KS)**; Keith Jackson, **Oklahoma City Zoo (OK)**; D. Kyle Guinn, **Tulsa Zoo and Living Museum (OK)**; Christina N. Monteith, **Ellen Trout Zoo (TX)**; Linda McNatt, **Rio Grande Zoo (NM)**; Robin Haeffner Matos, (no zoo listed/NV); Jamille Andrews, **Southern Nevada Zoological Park (NV)**; Linda Vannatta, **Honolulu Zoo (HI)**.

Renewing Institutional Members

Santa Fe Community College Teaching Zoo
Gainesville, FL
Jack Brown, Director

HMS Zoo Diets, Inc.
Bluffton, IN
A. J. Higginbottom, President

Tautphaus Park Zoo
Idaho Falls, ID
William R. Gersonde, Superintendent

F. O. Wilson Zoo Library
Oklahoma City Zoo
Oklahoma City, OK

Renewing Contributing Members

Mark Hofling
Bronx Zoo (NYZS)
Bronx, NY

Z.O.O. Offers Unique Cards

The Zoo Outreach Organisation (India) has created some beautiful greetings cards of Indian Species. These Cards are for sale at \$10.00 (£8.00) per packet of 12. All Profits will go to ZOO to run their network, training and conservation workshops.

The Zoo Outreach Organisation is a positive, constructive, practical, scientific, sensible and sensitive conservation organisation. ZOO conducts education, research and animal welfare projects for threatened species of South Asia and training for the people who work with them, both in the wild and in zoos.

You always need cards. To say thank you, to say happy birthday, to say goodbye, to say whatever. Why not purchase a pack or more of these? Bulk buy for your Chapter, zoo colleagues, friends and family! If you have a gift shop then why not buy a hundred packs? They are colorful, different, attractive and would sell well. Mainly though they will directly support conservation in South Asia.

The cards depict the Great Hornbill, Sangai, Asian Chameleon, Sweetlip Fish, Common Hoopoe, Indian Tiger, Asian Painted Bat, Tamil Lacewing, Hedgehog Seahorse, Lion-tailed Macaque, Pale Hedgehog, Malabar Gliding Frog.

Interested? e-mail zooreach@vsnl.com



Actual cards in full-color

“A Meeting of Keepers”

*By Jeannette Beranger, Chair
AAZK International Outreach Committee*

The AAZK National Conference this past October helped bring forth a new age of cooperation and communication between keepers on a global scale. It was in Columbus where representatives from many of the zookeeper associations around the world got together through the AAZK's International Outreach Committee (IOC) to discuss relations between their organizations and ours. This was the first time ever in our histories that all of our groups met face to face. In attendance were the following representatives:

Foundation De Harpij, The Netherlands – Hanny Verberkmoes, Ben Westerveld
Association Francophone Soigneurs Animaliers, France – Pierre Yves Paty, Mikael Michault
Asociacion Iberica De Cuidadores De Animals Salvajes, Spain – Pep Xarles, Helena Marques
Association of British Wild Animal Keepers, UK – Andrew Bagnall
Berufsverband de Zootierpflieger, Germany – Carsten Knott
Australian Society of Zoo Keeping, Australia – Geoff Underwood, Carla Srb

Those in attendance for the IOC meeting enjoyed presentations and slides from each of the groups represented. We had additional visitors from Israel and Japan who also made it to the meeting and were able to share information with us. The foreign delegates were a delight to meet and it was not surprising that we all share similar goals and problems. There was many a late night spent exchanging ideas and opinions with each other as well as with other conference delegates.

Because of the tremendous cost of coming to the US for the foreign delegates, the IOC decided to try and get financial support to cover hotel and conference costs for this group. With the help of many people and AAZK Chapters, we managed to reach this goal and make it possible for the keeper association reps to come to our conference. I would especially like to thank Shane Goode and Beth Pohl for their assistance in the endeavor. Without their help, the meeting would not have materialized as well as it did for us. The following groups deserve our thanks and the foreign delegates wish me to express their appreciation to you:

Pt. Defiance AAZK Chapter
Portland AAZK Chapter
Detroit AAZK Chapter
Greater Baltimore AAZK Chapter
Ft. Worth AAZK Chapter
Cleveland Zoological Society
Rhode Island Zoological Society

Greater Cleveland AAZK Chapter
Puget Sound AAZK Chapter
Lincoln Park AAZK Chapter
North Carolina AAZK Chapter
Rocky Mountain AAZK Chapter
Columbus Zoo Conservation Committee

This was the first meeting of its kind, but certainly not the last. All of the representatives from the keeper associations abroad intend on keeping the momentum going. We all agreed to do our best to see to it that the channels of communication stay open and that we encourage our associations' members to go and participate in each others' annual conferences abroad.

One particularly exciting result of our meeting this fall was the development of the idea to create an International Congress on Zookeeping. We all felt the need to continue the exchange of ideas and to try and reach as many keepers as possible around the globe. After the AAZK Conference in Columbus, everyone went home with this concept to present to each of the associations for approval. I am quite pleased to say it has been approved by all of the countries involved and the first International Congress on Zookeeping will be held in The Netherlands in 2003. The AAZK will participate as co-organizers of the congress along with other keeper associations abroad. You will be given details through *the Animal Keepers' Forum* as they develop on this project.

We are all very pleased with the progress that has been made with international relations this year. The AAZK National Conference has helped to inspire many individuals and lay a strong foundation for the future of international development and communication between all of the keeper associations. My thanks to all who helped with that accomplishment. There are too many people and places to mention and not enough pages in the *Forum* to express everyone's gratitude to them. You were a big help and we thank you one and all.

As for those who didn't get a chance to meet the international keepers, get yourself to Toronto in 2001. We hope to have a group meeting again filled with plenty of information for you to absorb and take home with you. If you can't make Toronto, perhaps one of the other conferences abroad? It's time we went global. We are all zoo professionals no matter where we come from. Our animals deserve the best care and future outlook possible and who better to start with to achieve this goal than the zoo keepers. Anyone can play a part in this with a little effort. As Tony Vecchio said in Columbus "Get involved! You'll never regret it."





REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr.
Gainesville, TX

Question

What do you look for in a firearm?

Comments

The selection and purchase of firearms can be a daunting task due to the diversity of manufacturers and models available on the market today. However, there are criteria, which can help identify the key factors which influence the selection and usage parameters of firearms.

Selection Factors:

1. Available Budget - Exactly how much money is the institution willing to spend or what level of funding has the budget designated as available? The axiom of "you get what you pay for" holds true when purchasing a firearm. Typically, expect to pay between \$200.00 to \$400.00 for a shotgun and \$400.00 to \$700.00 for a rifle of standard quality.
2. Number of Designated Shooters - How many staff members will be involved in the training program and given firearms accesses? This is typically determined by the number of designated shooters on the Emergency Response Team (ERT) or Crisis Management Team (CMT). According to the North American Crisis Management Survey (1966), the average number of shooters at a zoological institution is four to six.
3. Size of Collection - How many species in the collection can be classified as dangerous animals and what are the population levels? For example, if the institution has a high population density of elephants, then more than one large caliber rifle may be needed.
4. Diversity of Collection - If the collection is specialized totally towards a few large species then more rifles and fewer shotguns may be needed. If the collection is almost totally dominated by smaller species, than the inverse is true.
5. Size of Facility - Zoological institutions range a great degree in terms of size. While most small and medium sized institutions can get by with one central location for firearms storage, the larger facilities that cover vast amounts of acreage may need several locations in order for the firearms to be accessible in a timely manner.
6. Special Needs - Certain institutions have large specialized exhibits and holding areas. For example, many facilities that have large complexes or multiple buildings for housing elephants or carnivores have stored a rifle and shotgun in each individual area because of the increased danger level associated with managing these species in captivity. This is an extremely positive and progressive move.

While all of this establishes the number and diversity of firearms that an institution may need or ratio of rifles to shotguns, it doesn't address the particulars for what an individual should be looking for when they walk into a gun shop or sporting goods store. There are certain key factors, which should be kept in mind when purchasing.

Usage Factors:

1. Size - While the average person shouldn't have a problem with any firearm off the shelf, smaller individuals often do have problems. This is especially true for shotguns because longer length and size decreases recoil, while increasing magazine capacity, and with the right ammunition, range as well.

2. Reliability - If a firearm is purchased from any of the larger recognized firearm manufacturers, then quality and reliability shouldn't present a problem. It is imperative that quality and reliability not be sacrificed to save money. The question that should be asked is whether the staff would be confident responding to a crisis with this firearm.

3. Caliber - Make sure that the firearm purchased has adequate firepower to stop the dangerous animal species in the collection. Also, insure that the ammunition is readily available off the shelf. It doesn't make sense to purchase a firearm chambered for an exotic "wildcat" caliber. Such ammunition is difficult to come by, expensive, and may not be up to the task.

4. Familiarity - If the designated shooters are predominantly familiar with a certain type of firearm, then it's best to stick with it. For example, if four out of five shooters are used to shooting bolt-action rifles, then it would be impractical to use semi-automatic rifles.

5. Ergonomics - If a firearm is not properly designed and not user friendly, then it will probably be uncomfortable to shoot. And if it's uncomfortable, be prepared for poor marksmanship and training problems. There is really no reason to buy a poorly designed weapon when there are so many well designed ones. Stay with the established major firearm manufacturers, they're doing something right.

6. Attitude - If a firearm is of questionable quality, caliber, and with poor ergonomics, then don't be surprised if the staff is uncomfortable relying on it. Confidence in the firearm is essential for the emergency responders who are expected to stake their lives on its performance.

Inevitably I'm asked what do I use. I have a marked preference for Austrian and German firearms due to their accuracy and workmanship. However, there are also several stateside manufacturers that produce semi-custom rifles of extreme quality. Still, there are a few major manufacturers who produce reliable firearms I am comfortable with. For further reading I recommend AAZK's book *Resources for Crisis Management in Zoos and Other Animal Care Facilities* available from the AAZK Administrative Offices.

Next Month: Have any major changes occurred in crisis management?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF.

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)



By Kayla Grams, Como Zoo
and Jan Roletto, Columbus Zoo

Fabricated Trees

We have used the following techniques to good effect with small and medium sized parrots, and small primates. We will use the fabricated trees that were built for our Mongoose lemurs (*Eulemer mongoz*) to explain this method. From this example, you can scale your 'trees' according to what species you have in mind.

All the materials used were taken from existing trees within zoo grounds (ideally long limbs, no bigger than 36 inches in circumference where the branch meets the trunk). In our case we used sycamore (*Platanus spp.*) as this species is plentiful within our zoo, is non-toxic, and tends to retain its bark for a long time after being cut, adding longevity to the finished exhibit. After cutting the desired limb from the tree, trim all the smaller branches from the main limb (don't throw them away yet!), and then cut the limb into the desired lengths. These lengths will form the trunks of your trees.

Next, sort out the trimmed branches into piles according to size (again, if you are going to use fabricated trees for a number of different sized species, all of these branches may prove useful) and cut the branches you want to use into manageable lengths (2-4 feet). Preparing these branches is the most time-consuming step. Place one of the branches in a vice with the thicker end facing towards you. Using a 1 1/2 inch diameter, 2-inch long hole saw, cut a 'tendon' joint into the thick end of the branch (Figure 1). Once the hole saw has cut as deep down the branch as possible, measure two inches from the base of the branch and cut off the excess bark and wood. After you have made the desired amount of branches, you can begin putting your trees together.

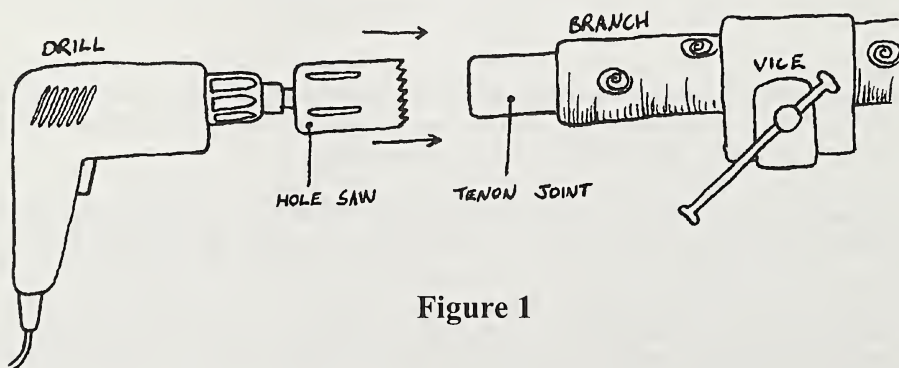


Figure 1

The trunks of our 'trees' were all cut to 6 1/2 feet. They were dug into the ground six inches and secured to the top of the cage wire with nails. If you are going to use fabricated trees in an open air exhibit or one too high to secure trees to the top, the trunks will need to be dug in as deeply as possible to make the 'tree' safe and secure.

Once all of your trunks are in place, start drilling the 'mortice joints' that will hold the branches in place using a 1 1/4 inch wood auger (Figure 2). If desired, drill into the trunks at a slight downward angle, which will give the branches a more natural appearance when in place. When all the 'mortice joints' have been drilled into the trunk the branches can be added. It's a good idea to use sandpaper on the 'tendon joints' of each branch; the fit should not be completely tight so as to facilitate changing branches at a later date. If the branch is too loose it can be fixed in place with a nail, or preferably, a screw. A mallet or sledgehammer is useful if the fit is too tight.

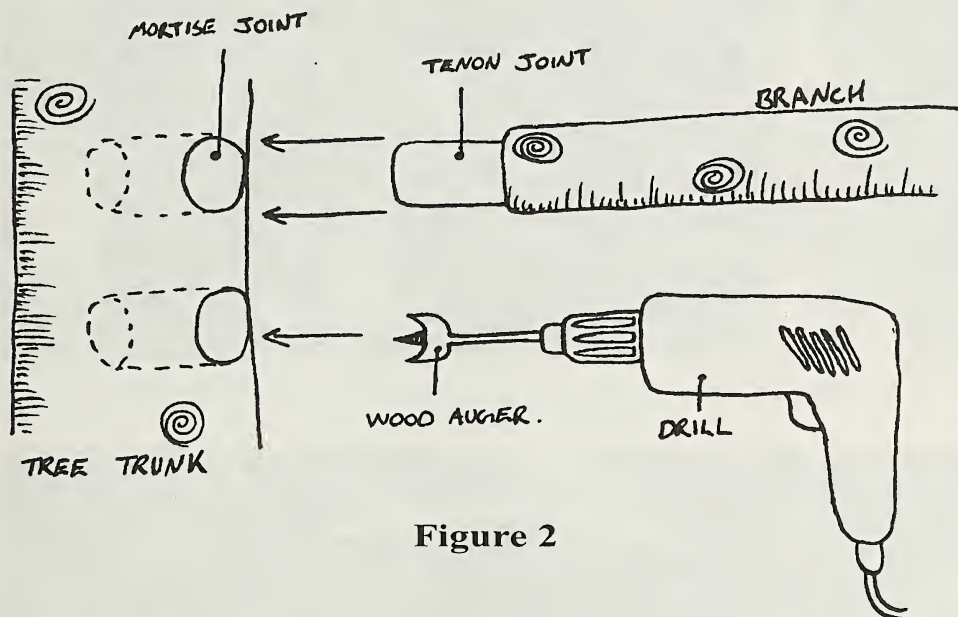


Figure 2

When building 'trees' for our Meyers parrots (*Poicephalus meyeri*), we used smaller trunks and lighter branches (so that they bob up and down when a parrot lands on one) furthering a naturalistic effect. With smaller 'trees' the branch-making step (figure 1) can be avoided providing you have a set of smaller sized augers for the varied branches. These branches are often more plentiful and easier to change. Remember, scale branches to trunks and vice versa, i.e. thick trunks, thick branch.

It's a lot of work, but the end result can be quite versatile and aesthetic. Try sticking browse branches into the trunks to add to the natural effect or re-arrange loose fitting branches for enrichment value.

---Keith Gilchrist, Sacramento Chapter AAZK , Sacramento Zoo, CA

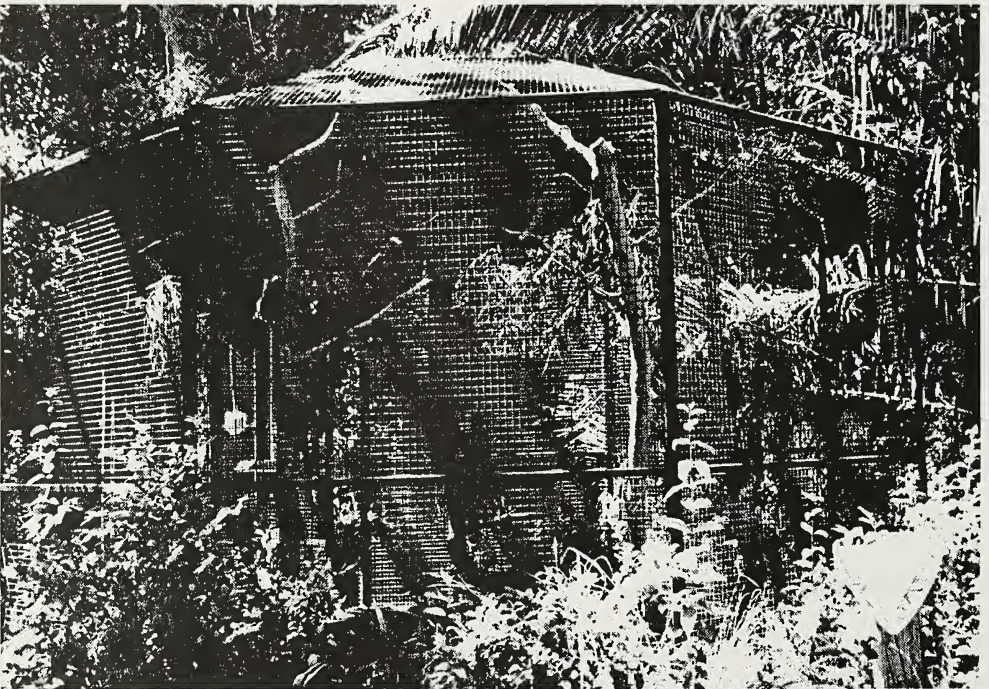
List of Tools Needed

Electric drill
1 1/4 inch wood auger
2 inch long, 1 1/2 inch diameter hole saw
Sandpaper

Bow saw
Mallet or sledge hammer
Nails or screws



Mongoose lemur on fabricated trees at the Sacramento Zoo.



Meyers parrot cage fitted with fabricated trees at the Sacramento Zoo.

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

Visit the AAZK Enrichment Website - www.enrich.org/aazk or to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich

****Enrichment Options ART Contest****

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!!

The logo should be **Crisp, black and white, and clear!**
Note the size in the *Animal Keepers' Forum*. The logo should be no larger than it. You may include the Enrichment Options title into the picture, or without. Submissions should be black pen and ink for better quality.

Deadline for submissions is April 1, 2000. Be creative. You can send your submissions to the AAZK Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn: Enrichment Options Art Contest

Operant Conditioning/Enrichment Links

Clicker Training

<http://www.clickertraining.com>

Primate Enrichment Network

<http://primate-enrichment.net>

The Honolulu Zoo's

Animal Environmental Enrichment Program

http://www.honolulu zoo.org/enrichment_activities.htm

An Animal Trainer's Introduction To Operant and Classical Conditioning

<http://www.geocities.com/Athens/Academy/8636/Clicker.html>

Environmental Enrichment — Operant Conditioning

<http://www.primate.wisc.edu/pin/owagner.html>

A Beginner's Guide to Operant Conditioning

<http://www.clickersolutions.com/clickersolutions/articles/ocguide.htm>

Teaching Operant Conditioning at the Zoo
<http://www.behavior.org/animals/lukas.cfm>

Memphis Zoo Operant Conditioning
<http://www.memphiszoo.org/operant.htm>

Operant Conditioning in Managing Diabetes in Primates
<http://209.52.189.2/article.cfm/primates/21414>

TRAINING HELPS EASE BEASTLY TENSIONS
<http://chicagotribune.com/version1/article/0,1575,SAV-9911260088,00.htm>

Training: A Critical Component Of Enrichment Programs
<http://www.naturalencounters.com/aza2.html>

Primate Enrichment Network
<http://primate-enrichment.net>

Source: *ZooNewsDigest* #133 Dec. 11-17, 2000

MOVING?

Please let us know when you change your address! It costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address. THANKS!

Asian Elephant in Trouble

Asian elephants, numbering only 35 to 50 thousand animals (about 10% of the African elephant population), are being "squeezed into increasingly smaller woodland areas" reports the BBC News. Disruption of migration routes and habitat loss from deforestation, farming and development is creating more and more conflict with humans who are shooting, poisoning and hunting them for their "meat, hides and tusks." Trade of ivory within countries such as India remains a problem as is enforcement of laws against poaching in Cambodia and Vietnam.

Source: *GREENlines* Issue #1279 12-18-00

Bowling for Rhinos 2001

It's time to start planning for Bowling for Rhinos 2001. Please send in the information ASAP. Remember, if you want to be eligible to win the two-week trip to Kenya, all monies must be sent to me no later than **1 September 2001** and you **must** be a National AAZK member in good standing. If bowling isn't your thing, try Rock 'n' for Rhinos, Rummage for Rhinos, Run for Rhinos, or even Chapter donations are accepted! Every penny counts toward saving rhinos worldwide!

Contact person:

Zoo/Organization:

Address:

City:

State:

Zip:

Phone:

Day -

Night -

Fax:

E-mail:

Will you be hosting a Bowling for Rhinos event this year?

YES

NO

When?

Would you like sample letters/flyers/posters?

YES

NO

Would you like BFR art? If so, send a DOS/Mac formatted diskette (or via <http://bfr.aazk.org>) and let me know which format it is.

YES (disk enclosed)

NO

How many sponsor forms do you need (same ones as last year)?

Quantity desired: _____

Additional Comments:

Please Note: There is a \$25.00 registration fee required from each organization holding a BFR event (waived for first timers).



Please mail to: Patty Pearthree c/o BFR
318 Montibello Drive
Cary, NC 27513-2479
(919) 678-0449
e-mail: ppear3@aazk.org
BFR Website: <http://bfr.aazk.org>

2000 Conference Proceedings Order Information

If you are interested in ordering a copy of the Proceedings containing the papers presented at the 17th NationalAAZK Conference which was held in Columbus, OH, you will need to fillout and return the form on the next page with the appropriate payment. All orders must be prepaid in U.S. Funds ONLY. Conference Proceedings are planned to begin shipment in January 2001. Once shipped, domestic orders should take about two weeks; overseas orders take longer by surface post. Prices are as follows:

AAZK member \$25.00

Nonmember

\$40.00

Postage for U.S. orders is included. Canadian and overseas orders should add \$5.00 for airmail postage in Canada and surface postage elsewhere. Overseas orders wishing airmail service should add \$10.00. Make checks or money orders payable to: AAZK, Inc.

Note: those presenters who correctly submitted their manuscripts for inclusion in their 2000 Conference Proceedings will receive one gratis copy. All others wishing a copy must place an order.

The following papers are included in the Proceedings: Operant Conditioning of Lowland Tapirs for the Purpose of Blood Collection ~ Mixed Species Exhibitory ~ A Study in Temporary Housing ~ Blue Bunny® Enrichment Day ~ Using Tractable Animals to Convey Conservation Messages ~ Genetic Analysis of the Captive Giraffe: A Keeper Initiated Research Project ~ Making Conservation a Reality: Prairie Restoration at the Rocky Mountain National Wildlife Refuge in Denver, CO ~ Memorable Presentations of Applied Behavior Analysis ~ FIC, Clinical Disease or Not? ~ Innovations in Animal Record Keeping: the Use of Technology to Make Daily Reporting More Efficient ~ Response to Medical Crisis: A New Approach to Orangutan Husbandry at the Pittsburgh Zoo and Aquarium ~ To In Situ or Not In Situ, That's Not the Question Anymore: After You Say I Do to In Situ ~ Using Graphics to Promote Enrichment ~ Environmental Enrichment of Asian Elephants at the Detroit Zoo ~ A Gorilla Cesarean Section at the Columbus Zoo and Aquarium ~ A Profile of Progesterone Excretion During Pregnancy in Gelada Baboons ~ Pseudopregnancy in Grey Wolves ~ Supplemental Feeding of a Dam-reared Sumatran Tiger at the Phoenix Zoo ~ Organizational Techniques to Foster Consistency in Animal Training Programs ~ Overcoming Constraints of Training Individual Mandrills in a Large Group ~ Going Green ~ What Does It Mean? ~ Specialization or Generalization? An Outreach Perspective ~ Raising Penguins from Scratch ~ 2000 Bowling for Rhinos ~ Where Does the Money Go? ~ Initiation of a Howler Monkey Training Program ~ Guidelines for Establishing Training and Conditioning Protocols for Captive Duikers ~ A New Training Program for Old World Monkeys: Black and White Colobus ~ Enriching Hoof Stock ~ A Tricky Business ~ The Lewa Wildlife Conservancy ~ A Project Supported by AAZK ~ Husbandry and Veterinary Procedure Training at Disney's Animal Kingdom: A Model for Role Clarification and Consensus ~ Set-Up of a 250-Gallon Coral Propagation Tank ~ Managing a Geriatric Gorilla: A Keeper's Perspective ~ Public Education: From a Keeper's Point of View ~ Temporary Separation from Group Members and Its Effects on the Relationships Among Western Lowland Gorillas ~ Introduction of two all-male Groups of Woolly Monkeys ~ Mommy Dearest II: Behavioral Conditioning of a Pair of Cotton-Top Tamarins to Increase the Potential for Appropriate Parental Care ~ **Poster Presentations:** The Columbus Zoo and Aquarium Gorilla Surrogacy Program ~ Human/Parental Rearing of a Hamadryas Baboon ~ Growth Rates of King Penguins Hand-Reared on Solid Food ~ An Overview of Training at Lincoln Park Zoo's Great Ape House ~ Recycle Program Success at Wildlife Safari ~ Recycling Benefits all ~ Photo Identification of King Penguins ~ Quarantine on Exhibit ~ A Success Story ~ Using Automatic Feeders as Enrichment to Increase Animal Visibility at Disney's Animal Kingdom ~ The Analysis of the Hand-Rearing Data on all Cheetah Cubs in the North American Population ~ Introduction of 1.0 Red Ruffed Lemurs to a Mixed Species Lemur Exhibit at the Dallas Zoo ~ **Workshop Summaries:** Otter Workshop 2000 ~ Making Good Impressions: A Workshop on Casting Animal and Sometimes Human Body Parts ~ Is It Really Enrichment...How Can You Tell? ~ Australasian Workshop 2000 ~ Who Says You Can't Get What You Want? Animal Training Workshop ~ A Meeting of International Keepers ~ Enrichment "Rap" Session and Enrichment/Training Video Session.

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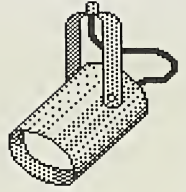
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Once 2000 Proceedings copies are sold out, photocopies of individual papers will be available for \$3.00 each by contacting the AAZK Administrative Offices.

ORDER NOW !

Spotlight on - Zoo Keeper Grants in Conservation (CPR Grant)



(Editor's Note: Each year AAZK, Inc. offers a \$1000 grant for keeper-initiated work in conservation projects and/or research. The following is a final report from Judy Harkelroad, Senior Village Ranger at Wildlife Safari in Winston, OR, on her project entitled "Recycle, Reduce, Reuse, Restore".)

The Wildlife Safari Chapter of AAZK (WLSAAZK) formed in 1994. Since that time, the Chapter has been dedicated to recycling at Wildlife Safari (WLS) and supporting local conservation efforts. The AAZK CPR Grant, along with financial support from the National Association of PET Container Recycling (NAPCOR) and our own Chapter, enabled us to increase our efforts in both recycling and local conservation. Firstly, the WLSAAZK identified several upgrades for the current recycling program. Secondly, the Chapter voted to support stream restoration within WLS with funds raised by redeeming recycled materials.

Four upgrades were identified for the current recycling program. The first upgrade focused on increasing awareness of recycling opportunities at WLS and increasing involvement in the program. This was achieved by posting an eye-catching graphic at the entrance of the Safari Village. This graphic alerts guests and staff to look for recycling receptacles throughout the park. Ten (10) new recycling receptacles now sit in high traffic areas of the Village and this alone have increased participation in recycling. Transfer of materials from our park to the local depot now involves help from a larger group of individuals ranging from docents, AAZK members, at-risk youth groups, community service workers and staff from many departments.

The second upgrade involved increasing information available about recycling. This is achieved through verbal dissemination of basic information at general employee meetings and in more detail within various departments. The "Safari Recycle Game" which uses a painted table top as the game board and milk jug lids as the playing pieces, incorporates a variety of conservation messages. The game was played by hundreds of guests of all ages this last summer and offered a fun way to learn more about recycling. Lastly, a "Recycle Tip of the Month" graphic board with 12 slots displaying a year's worth of tips came online this past spring.

The National AAZK CPR Grant supported the third upgrade that encouraged the expansion of recycling efforts into the community. A Recycling Trailer was built for daily use on WLS grounds and at periodic community events. The trailer has eight (8) compartments that allow for the sorting of newspaper, mixed paper, milk jugs, plastics, tin, aluminum and trash. Directions for preparation of recycled materials appear on each door. The trailer (and the Safari Recycle Game) most recently appeared at the county-celebrated Earth Day Fair and is consistently used by the staff on park grounds.

The fourth upgrade supports funding of other conservation efforts. A small amount of funds are raised annually through the redemption of recycled materials. The WLSAAZK agreed to dedicate the funds generated over a two-year period to stream restoration within WLS. WLS streams are part of a watershed that historically supported anadromous salmonids. Population counts indicate that all anadromous salmonid populations are well below historic levels. The WLSAAZK desired to compliment the wetland restoration efforts being made through a Wildlife Safari Wetlands project whose groundbreaking occurred this last summer. With thousands of dollars available through mitigation for the larger project, our AAZK Chapter felt that the funds generated (\$225.00) over the past two years would be well spent on a recycled plastic sitting bench at which guests and staff could overlook and appreciate the wetland project. Our chapter is looking into the costs and availability of plastic lumber.

We chose to measure success not by the funds generated, but more from the increase in participation and awareness of the recycling program. More products than ever are being recycled at Wildlife Safari and participation in the program has increased tremendously. At an expense of less than \$2000.00, our Chapter now has the opportunity to continue with recycling efforts in greater proportions and contribute to other conservation programs. We consider the program to be a huge success and owe

International Enrichment Conference 2001

The 5th International Conference on Environmental Enrichment is being hosted by the Taronga Zoo in Sydney, Australia from 4 to 9 November 2001. The conference will be held at the ANZ Conservation Lecture Theatre at the Taronga Zoo. This new theatre is an exciting conference venue sporting a view across the zoo and Sydney harbor. The conference theme is: Making Enrichment a 21st Century Priority. As the theme states, the focus for this conference is to make environmental enrichment a priority in our zoological institutions. This will be done by discussing all aspects of animal behavior in captivity—thus promoting an interchange of ideas between researchers and zoo staff—by showcasing enrichment initiatives as a stimulus to our own practices, and by looking for ways to incorporate enrichment more effectively into our operations. The program will consist of oral papers, forum discussions, workshops, and poster presentations planned around visits into the zoo for displays of enrichment in action.

The conference will end with a plenary planning session. Suggested session topics:

- Linking enrichment theory and practice
- Making enrichment a key husbandry activity
- Measuring the psychological well-being of animals
- The under-enriched taxons: Marsupial, Avian, Herpetofauna
- Enrichment in off-exhibit areas
- Innovative enrichment initiatives
- Conditioning and training as enrichment
- Enrichment and the zoo visitor.

A conference page has been added to the Taronga Zoo website (www.zoo.nsw.gov.au). On-line registration and abstract submissions will be available from January 2001, and the site will be updated regularly through 2001. Once established, this page will be hotlinked from the conference pages of *The Shape of Enrichment* website (www.enrichment.org).

For more information, contact Margaret Hawkins, Behavioural Biologist at: Taronga Zoo, P.O. Box 20, Mosman, NSW 2088, Australia; e-mail: mhawkins@zoo.nsw.gov.au; telephone: +61 29978 4615; fax: +61 29978 4613.

Once again, The Shape of Enrichment, Inc. is offering \$1,000 to the winner of our Enrichment Grant Contest. Papers relating to enrichment ideas, theories, and practicalities are judged by a panel of enrichment specialists. The author of the winning paper is invited to present the paper at the International Enrichment Conference and awarded \$1,000 to be used toward conference expenses.

The deadline for submitting your paper(s) is **20 April 2001**. More information and an official application form can be found in the August issue of *The Shape of Enrichment*. The application will be available on our website soon as well. Good luck to you all, and I hope to see you in Australia!

Valerie Hare

Co-Editor, The Shape of Enrichment, Inc.

The Water Column

By

Dan Conklin, Senior Biologist, Florida Aquarium

Bruce Elkins, Curator of Waters, Indianapolis Zoo

Kevin Shelton, Associate Curator, Florida Aquarium

Nitrosomonas, fluidized bed, protein skimmer, ORP, Mazzei injector.... Does this sound Greek to you? Well some of it is, but these are terms anyone dealing with water and animals should know. This is a new column dedicated to issues affecting water quality in zoos and aquariums. Many may think that only aquarists need to know this esoteric alchemy. This is not the case. If the animals in your charge swim, bathe, drink, play in, or otherwise come into contact with water then you should know what's in that water. Even the water coming from the municipal water supply can contain chemicals detrimental to the health of your collection.

In this column we will explore the chemicals, methods, equipment and concepts of providing the best water to our collections. It will be an opportunity for you to ask questions just as in the Behavior and Crisis columns. For the first few articles we will look at the basics of water quality. Then the methods and equipment used to maintain good water will be discussed. Further articles will cover testing for proper chemical balance and troubleshooting.

We all want to provide the best for our collection and hopefully this will help each of you. There have been advances in this field recently that have led to greatly improved water quality. Using proper filtration can also reduce the amount of work necessary to keep our areas in top condition. As environmental institutions we are also concerned with conservation of natural resources. Fresh water is a precious commodity. A good filtration system can greatly reduce the need for water changes and thus reduce water usage.

Each month we will also be answering a few questions from you. We will try to pick questions that are pertinent to that month's topic. We also welcome feedback from the readers. Questions and comments can be submitted to us by email at:

Dan: dconklin@flaquarium.org

Kevin: kshelton@flaquarium.org

Bruce: belkins@indyzoos.com

Or by mail at:

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Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



Thailand's Government Attempting to Put Tiger "Farmer" Out of Business

Zoo officials throughout Thailand and members of its government are taking action against a private zoo owner who is breeding tigers on farms to be slaughtered for their meat, bones, and skin. The farm owner, Chuvit Pitukiprnpob, says that this is the best way to stop the massive illegal trade in the endangered cats and to provide a safer home for those animals left in the wild. Opponents to Chuvit's plan say that this "would turn back the clock on a global effort to stop the underground trade that has threatened the big cats with extinction."

Parts of tigers, provided by poachers, are believed to increase potency, alleviate rheumatism and are a popular accessory for charms and ornaments in many countries. Chuvit himself is a member of the opposition Thai Rak Thai political party and is expected to be reelected to his seat in their equivalent of a congress in 2001. He has repeatedly stated that he will lobby for a lifting on a ban on tiger farming in the country if he is reelected to his political seat.

The captive tiger population, claims Chybit, could climb from about 1,000 now to 40,000 in 10 years if he has his way. Alternatively, wildlife experts warn that raising tigers on farms could lead to genetic dilution of the species due to inbreeding. Additionally, a spokesperson for the Wildlife Fund Thailand says, "Farm-grown tigers would be useless in conserving the species since they wouldn't survive in the wild."

Another concern comes from conservation groups outside Thailand, which claim that tiger farms could be used to "launder" products from wild tigers. According to one authority, no more than 7,500 tigers remain in the wild in 14 countries in the Indian subcontinent, Southeast Asia and Russia.

Currently, breeding tigers for commercial purposes is punishable in Thailand by up to four years in prison and a \$1,000 fine. However, Chuvit and others evade the ban by operating licensed private zoos that are legally allowed to keep tigers that were in captivity before 1992. *Source: Excite News Online (Associated Press) 31 December 2000*

106th Congress Leaves Legacy of Many Pro-Conservation Laws

A summary of legislation passed by the 106th Congress (which came to a close just before Christmas 2000) has been graciously provided to us by the Audubon Society. Some of these items have been "tracked" through this column and it is heartening to see their final outcome. Now, if they can just get funded we are in good shape! Below is a digest of that report:

(1) PASSED: EVERGLADES RESTORATION. One of Audubon's top priorities, the final bill authorizes and secures funding for a series of projects to return the natural quantity, quality, timing, and distribution of freshwater to the Everglades. The multi-year project will return the natural flow of water to the "River of Grass" and improve the habitat of the 68 threatened or endangered species, and hundreds of other species of birds, other wildlife, and plants that call the Everglades home. This is a major victory for Audubon, and for the many, many people who have fought to pass this legislation over the past ten years. The new law secures \$7.8 billion over 30 years for nearly 60 projects that will restore, preserve, and protect the Everglades, as well as provide other water-related needs for the South Florida region.

(2) PASSED: NEO-TROPICAL MIGRATORY BIRD PROTECTION. In an important victory for birds, President Clinton signed into law the Neotropical Migratory Bird Conservation Act, the only bill in this Congress that directly helps songbirds. The new law establishes a fund to support partnership programs that will conserve and enhance habitat of Neotropical migratory birds such as the Kirtland's Warbler, Hermit Thrush, Black-capped Vireo and Kentucky Warbler. At least 75% of the money will go to projects in the Caribbean and Latin America, where the birds spend their winters. It authorizes \$5 million per year for five years and funds a maximum of 25% of the money for each project. The remainder will be raised or contributed by partners such as businesses, non-governmental organizations and foreign nations. Approximately five billion birds of 500 species, including many endangered species, migrate to North America from wintering grounds in Latin America and the Caribbean annually.

(3) PASSED: CONSERVATION FUNDING: When it became apparent that the U.S. Congress would not pass the sweeping and Audubon-supported Conservation and Reinvestment Act (CARA) this year, House and Senate supporters pulled together a smaller measure that, although not CARA, represents the largest commitment our country has made to conservation in decades. The new law incrementally increases funding up to \$12 billion over the next six years for local, state and national conservation efforts. For Fiscal Year 2001, funding is broken down as follows:

- (1) \$540 million for federal and state land and water conservation programs, such as land acquisition to protect precious lands from development threats;
- (2) \$400 million for coastal protection programs, such as pollution control programs;
- (3) \$300 million for state conservation programs, such as open space proposals and other state fish & wildlife conservation programs;
- (4) \$160 million for urban and historic preservation programs;
- (5) \$150 million for federal lands maintenance, to help reduce backlogs of maintenance needs in our National Wildlife Refuge System, and
- (6) \$ 50 million in payments to states in lieu of taxes lost on federally owned lands.

(4) PASSED: FUNDING FOR SEVERAL AUDUBON CENTERS: The U.S. Congress passed several measures that will directly benefit several Audubon Centers, and specific conservation projects backed by Audubon state offices and chapters. Included as part of the Veterans Housing and Urban Development and Related Agencies (VAHUD) appropriations bill, Congress secured funding for the following projects:

- \$200,000 for Schlitz Audubon Nature Center, in Milwaukee, WI.
- \$172,000 for the Grand Valley Audubon Nature Center, in Grand Junction, CO.
- \$225,000 for the Debs Nature Center in Los Angeles, CA.
- \$465,000 for the Prospect Park Audubon Center at the Prospect Park Boathouse in Brooklyn, NY.
- \$125,000 for Audubon of Florida's Environmental Education program for inner-city students in Miami-Dade County.

(5) PASSED: MOST OF AUDUBON'S LAND AND WATER CONSERVATION PRIORITIES: This year's Interior Appropriations Bill - the legislation that secures the bulk of funding for birds, other wildlife and their habitat — included \$30.1 million for National Audubon Society's Land and Water Conservation Fund priorities. These priorities include key habitat areas for birds and wildlife in 12 national wildlife refuges and four national forests in 13 states. Overall, Audubon requested funding for 36 priorities and received funding for 16 of them.

- Pelican Island National Wildlife Refuge (NWR) in Florida received \$3.2 million;
- San Diego NWR in California received \$3 million;
- Arapaho National Forest (NF) in Colorado received \$2 million;
- Bon Secour NWR in Alabama at \$1 million;
- Stewart B. McKinney NWR in Connecticut at \$1.5 million;
- Big Muddy NWR in Missouri at \$1 million;
- Patoka River NWR in Indiana at \$800,000;
- Red Rock Lakes NWR in Montana at \$1.75 million;

- Wertheim NWR in New York at \$2 million;
- Balcones Canyonlands NWR in Texas at \$1.75 million;
- Lower Rio Grande Valley NWR in Texas at \$1 million;
- Montezuma NWR in New York at \$2 million;
- Chugach NF in Alaska at \$2.5 million;
- San Bernadino NF in California at \$2.5 million; and
- Lake Tahoe NF in California/Nevada at \$4 million.

(6) **PASSED: SECURING ACRES FOR WETLANDS:** This year's Agriculture appropriations bill secured 100,000 additional acres in the Wetland Reserve Program (WRP), and another Audubon-supported measure that establishes a pilot program to protect prairie potholes - important habitat for birds and other wildlife - in six states: North Dakota, South Dakota, Minnesota, Nebraska, Iowa, and Montana.

(7) **PASSED: MORE FUNDING FOR THE LONG ISLAND SOUND:** Congress increased funding for the Long Island Sound and estuary protection nationwide. Estuaries are places where rivers meet the sea, and are critical for the survival of many species of birds, mammals, fish and other wildlife. Under current law, the Long Island Sound Office is slated to receive only \$3 million per year. People have argued for years that this amount is insufficient to help clean up, prevent nutrient pollution, and upgrade sewage treatment plants in such a large, densely populated estuary. Congress has listened and the new law increases the authorized funding levels for the Long Island Sound to \$40 million per year for five years. In addition, the nationwide estuary program will increase from \$40 million this fiscal year to \$75 million by fiscal year 2005. Also for the Long Island Sound, the Veterans Administration, Housing and Urban Development and Independent Agencies appropriations bill (VAHUD) - the funding vehicle for the Environmental Protection Agency - included \$5.5 million for the Long Island Sound, as well.

(8) **PASSED: REFUGE SYSTEM COMMEMORATION:** The U.S. Congress passed legislation, and the President signed into law, a measure to commemorate the 100th anniversary of the National Wildlife Refuge System. The National Wildlife Refuge System consists of more than 500 refuges that span across 50 states, host more than 700 bird species, and are the primary habitat for about 250 threatened and endangered species. These refuges are America's best hope for protecting our country's diverse bird and wildlife populations. But in spite of their important role, they find themselves in dire need of care: many are battling incompatible activities on and near refuge lands, inadequate water supplies, and insufficient budgets for operations, maintenance and new land acquisition. One of many responsibilities of the U.S. Fish and Wildlife Service (FWS), the Refuge System receives limited and inconsistent management attention. The Refuge System's low public visibility also has made it a target for members of Congress over the years. Enactment of this law is a positive step toward changing that — it creates a commission that will plan highly visible public projects to mark the 100th anniversary of the National Wildlife Refuge System. At Audubon's urging, the law also requires the FWS to address the Refuge System's backlog of operations and maintenance needs as part of its annual budget submission, and to report on progress in reducing that backlog for the previous, current and upcoming fiscal years

9) **PASSED: BAN ON SHARK FINNING.** In the final days of the 106th Congress, both the House and Senate passed legislation to ban shark finning — the practice of cutting off a shark's fins and discarding the remainder of its carcass back into the sea. The bill bans shark finning in all U.S. waters, seeks to address the issue internationally, and authorizes a number of studies on shark populations and the international trade in shark fins. *Source: Audubon Advisory Online 21 December 2000*

U.S. Fish & Wildlife Service Reviews Species on "Pending" Endangered List

The USFWS has undertaken a review of the 21 species (plant and animal) which are currently on its list of "pending" species on its list of candidates for threatened or endangered but has found that there are other species that warrant action before these 21 candidates can receive full attention and review.

This decision is based primarily on a claim by the USFWS that it has insufficient funds to go through the appropriate hearing and investigative processes for all pending species and that it must prioritize with those species most endangered getting the most attention. In effect, the 21 species in question are considered as "warranted" (needing investigation into their endangered status) but not important enough to be placed in a full-blown evaluation process.

Likewise, the USFWS is reviewing the 248 species already on the "candidate list" to determine whether their priorities have changed and whether they still need listing. Candidate species are those species for which the USFWS has adequate information about status and threats to determine they deserve listing. This includes both species identified by the Service and those petitioned by members of the public.

Currently, species considered for "warranted" status include the sheath-tailed bat (American Samoa population), Washington ground squirrel, band-rumped storm petrel (Hawaii population), lesser prairie chicken, Cagle's map turtle, California tiger salamander, Columbia spotted frog (Great Basin population), Oregon spotted frog (formerly spotted frog - West Coast population), boreal toad (Southern Rocky Mtns. population), Arctic grayling (Upper Missouri fluvial population), Gila chub, Sicklefin chub, Sturgeon chub, Chupadera springsnail, Gila springsnail, New Mexico springsnail, Roswell springsnail, Koster's tyronia snail, Pecos assimineia snail, coral pink sand dunes tiger beetle, and the San Fernando Valley spineflower. The five species petitioned for reclassification that remain warranted but precluded are spikedace, loach minnow, the North Cascades Ecosystem, and the Cabinet-Yaak and Selkirk grizzly bear populations. *Source: U.S. Fish & Wildlife Press Release 8 January 2001*

Interior Department Claims Slowdown in Loss of U.S. Wetlands

Interior Secretary Bruce Babbitt and Agriculture Secretary Dan Glickman have jointly released two new reports that both indicate there has been a dramatic slowdown in the loss of wetlands over the past decade.

"This is the greatest overall decline in the rate of wetlands loss since records have been compiled by the federal government," Glickman said at a press conference at the Interior Department. "While we celebrate this tremendous progress, we have not yet met our goal of no net loss, so we need to be sure that we continue our efforts to protect the environment and be careful not to move backward."

"The Interior report released today shows that the rate of wetlands loss has dropped dramatically in a decade — by 80 percent," said Secretary Babbitt. "This is very good news. Federal programs and policies encouraging wetlands conservation and restoration should be directly credited. At one time wetlands were considered wastelands but attitudes have changed. Today we know wetlands are beneficial for both people and wildlife because they protect drinking water, habitat, beaches, recreation areas, and much more."

The new report by the Department of the Interior's Fish and Wildlife Service, *Status and Trends of Wetlands in the Conterminous United States 1986 to 1997*, shows the rate of wetland loss in the United States has decreased down to an estimated annual loss of 58,500 acres, an 80 percent reduction compared to the previous decade. The national goal of no net wetlands losses still has not been met, however. The study shows that between 1986 and 1997, forested wetlands and freshwater emergent wetlands continued to show the most losses. Open water ponds have been increasing, yet there is concern that the long-term trend in the loss of vegetated wetlands may result in long-term adverse consequences. USDA's National Resources Inventory, a report on the health of America's private lands, also shows significant reduction in wetland losses. Prepared by the department's Natural Resources Conservation Service, the report found an average annual net loss from all sources of 32,600 acres of wetlands from 1992 to 1997.

The western half of the United States is nearing no net loss while the eastern part saw the largest wetlands loss. Wetlands are biologically diverse and dynamic ecosystems. Found in every state, wetlands support diverse populations of fish, wildlife and plants, providing habitat for more than forty percent of the nations endangered and threatened species. Often called "nature's sponges," they also help

protect water quality by filtering out pollutants, provide natural flood control by absorbing excess water, buffer coastal areas from erosion, and offer aesthetic and recreational opportunities.

The findings of the Department of Interior and Department of Agriculture reports reflect the culmination of more than a decade of progressive work and accomplishments in wetland conservation. Since 1993, federal agencies have adopted policies accentuating fair, flexible approaches to wetlands conservation and stewardship, placing strong emphasis on educating the public about wetland values, benefits, and the sustainable use of wetland resources. The data in the new reports indicate that policies and programs in the 1990s have helped slowdown wetland resource losses while increasing wetland restoration, creation, and enhancement.

The DOI Status and Trends report is available on the web at <http://wetlands.fws.gov/bha/SandT/SandTReport.html>; and the USDA National Resources Inventory is available at <http://www.nhq.nrcs.usda.gov/NRI>. Source: *U.S. Fish and Wildlife News Release 9 January 2001*

Senate Approves Chimpanzee Sanctuary

In early December the Associated Press reported that a bill creating a national sanctuary for chimpanzees once used in medical research had passed the Senate. The bill, which passed by unanimous consent, now goes to President Clinton. It essentially creates a system of sanctuaries for chimpanzees that are no longer used for research but are being kept in expensive federally-funded facilities. Under the bill, the post-research chimps will live in naturalistic environments and integrated social groups. There are about 1,000 such chimpanzees in six biomedical research institutions across the country. The government over-bred chimpanzees at the beginning of the AIDS epidemic. Chimpanzees, which can live up to 60 years, cannot be returned to the wild after medical research because most of them carry diseases such as hepatitis and HIV. They also face death from wild chimpanzees who feel their territory has been violated. It's expected to cost \$8 to \$15 per day per chimpanzee in a sanctuary, compared to the \$20 to \$30 per day now being spent to house the animals in laboratory cages, according to the Humane Society of the United States.

"Sanctuaries will be much more humane and much less costly," said Wayne Pacelle, senior vice president of the Humane Society of the United States. "It's a win-win situation for taxpayers as well as for the animals." Source: *Animal World/Associated Press*

U. S. Tops 'Red List' in Threatened Species

Release of the IUCN-World Conservation Union's "2000 Red List" finds that the U.S. "tops the list for total threatened species with 998, followed by Malaysia with 805, Indonesia with 763, Brazil with 609 and Australia with 524" reports *The Sydney Morning Herald*. The IUCN says that the extinction rate is now "between 1,000 and 10,000 times the normal 'background' rate since life began about four billion years ago" and contends that "human and financial resources" need to be increased by a factor of "between 10 and 100 times to save global biodiversity." Although the rankings "in part reflect the bias of modern scientific study," the U.S. also has the dubious distinction of being the worldwide leader in the number of documented extinctions, 236. Source: *GREENlines Issue #1227 10/2/00*

Octopus Enrichment Techniques

By Mark J Rehling, *Aquarist.*

Cleveland Metroparks Zoo, Cleveland, OH



The application of animal enrichment has proven itself to be beneficial to captive husbandry for many years. So much so that certain techniques have become standard practice for many species. Recent trends towards realistic habitats combined with other practices allow the captive animals to show their “true colors”, often-exhibiting behaviors that make many unique (Shepherdson, Mellen, & Hutchins, 1998). The application of enrichment becomes exceedingly more important when the exhibit is limited due to husbandry needs. Intelligent animals such as primates, pachyderms, or cetaceans easily fall into this category. Training serves to provide much stimulation but a host of other techniques are also applied. For most of the non-mammalian aquatic animals enrichment is often limited to forms of aquascaping or the presentation of live foods. Of these aquatic forms, the octopus expresses an obvious need for varied forms of enrichment.

The octopus in the wild is a reclusive but proficient nocturnal hunter using its unique make-up to its full means in various techniques of prey acquisition. It is an animal of surprising intelligence, capable of acts of amazing dexterity (Hanlon & Messenger, 1996). The wild octopus is presented with a multitude of challenges while hunting. Crustations, the primary prey of the octopus, can dart into small holes and crevices to avoid capture. Food, at times, is captured by touch alone (Hanlon & Messenger, 1996). Unfortunately, the ideal setting for both species and husbandry can result in a rather dim and spartan exhibit. This can cause an interesting but cryptic octopus to easily be overlooked or passed by. It also has to be fairly devoid of stimulation for an intelligent predator. Similar situations with vertebrate animals have been addressed with different forms of enrichment, but it seems surprisingly little is done with many octopuses.

A recent revamping of the octopus exhibit at the Cleveland Metroparks Zoo seemed to magnify this point. Great pains were taken (figurative and literal) to recreate an accurate image of the Northern Pacific coast for a specimen of *Octopus dofleini*. A specimen was acquired and the exhibit was officially opened. The levels of interest in the exhibit were limited to feedings and occasional glimpses of activity. Having seen the activity levels of terrestrial animals increased with some kind of stimulation, enrichment seemed the logical solution.

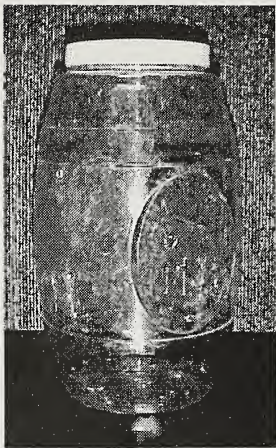
However, with the little information available, it seemed that we would need to create our own forms. This proved challenging.

The focus of our efforts was centered on investigative hunting documented in the wild. With exposure to the marine exhibit, the items had to be durable and easy to retrieve. The devices had to be challenging but solvable and expense was to be kept at a minimum. Ease of construction and ease of preparation were also strong considerations.

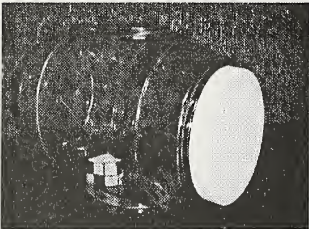
The result was the construction of various devices later called “prey puzzles”. Each had size, shape and challenge to provide as wide a range of stimulation as possible. They were often constructed of spare filter parts; pieces of plumbing and other assorted odds and ends that seem to congregate around aquarists. These puzzles were named for ease of recognition on daily keeper reports. With repeated presentations notes were made on acceptance levels, construction, and ease of use. The following is a compilation of those notes and other observations.

The Jar

The first item presented was a large plastic pretzel jar. The jar was introduced open and empty. The new object was observed but not touched. After a 15-minute period, the jar was removed. Two hours later the jar was reintroduced with a crab placed inside. This time the jar was investigated, and the octopus removed the prey. After the prey was accepted, the jar was promptly removed. Food was offered in this fashion, and accepted, for two more feedings. A lid was added to increase the difficulty. Placed loosely at first, the lid was slowly screwed down with every introduction until the octopus was able to open the closed jar. The lid was later attached with monofilament for ease of recovery.



Intended Challenge: – Introduction of Foreign Object - Manipulation of Obstacle



Notes:

Poor ...1...2...3...4...5... Good

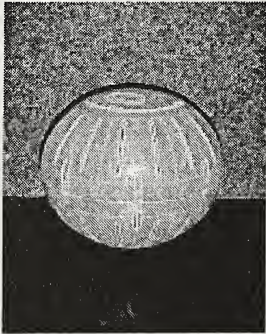
- Acceptance level.	.	.	.	.	.	4
- Ease of Construction.	.	.	.	.	.	5
- Cost .	.	.	.	.	.	5
- Durability.	.	.	.	.	.	4
- Ease of Retrieval.	.	.	.	.	.	4
- Ease of Preparation.	.	.	.	.	.	5
- Capable of presenting multiple sizes of food .	.	.	.	.	.	5

Observations:

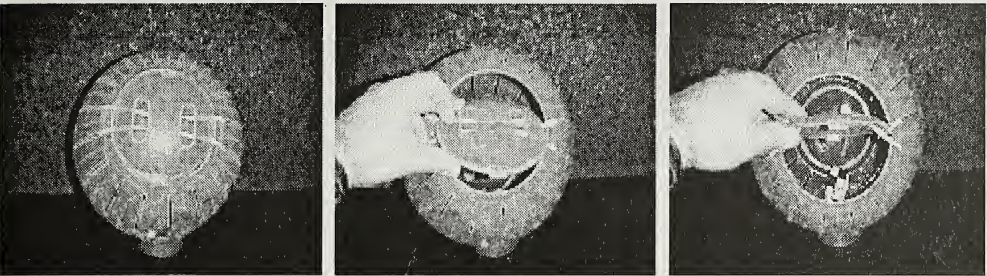
The jar was the simplest of the devices and always the first to be introduced. This introduction seemed to establish that new objects could contain rewards, but needed to be manipulated some way. Later holes were drilled in the body of the jar to aid in recovery. This puzzle was introduced to a newly arrived specimen that was substantially larger and surmised older than the previous and required no such introduction. Approximate time for solution by the elder, 20 seconds.

The Hamster Ball

The “hamster ball” was a hollow plastic sphere with a locking lid that was adapted to push in with pressure. Elastic bands held the lid in place and replaced it when the puzzle was solved. Food could be accessed by locating the weak point on the surface of the sphere. Once the opening was found, the lid had to be held open while the food was obtained. For introduction, the sphere was weighted down, but later the weight was removed and the sphere was allowed to float freely throughout the exhibit. Food placed inside counteracted the sphere’s positive buoyancy allowing it to be neutrally buoyant or “hover” in the water column. The normal currents present carried the sphere repeatedly passed the octopus’ den



requiring it to give chase. Once the food was removed and the sphere released, it could be easily retrieved as it floated to the surface.



Intended Challenge: Free Floating - Mobile - Manipulation of Obstacle

Notes:

Poor ...1...2...3...4...5... Good

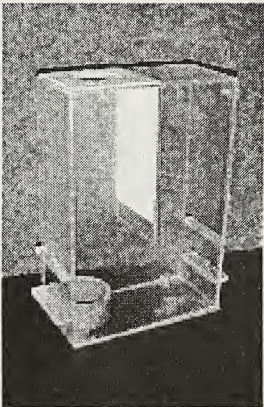
- Acceptance level.	.	.	.	.	.	4
- Ease of Construction.	.	.	.	.	.	4
- Cost.	.	.	.	.	.	2
- Durability.	.	.	.	.	.	3
- Ease of Retrieval.	.	.	.	.	.	5
- Ease of Preparation.	.	.	.	.	.	5
- Capable of presenting multiple sizes of food .	.	.	.	.	.	5

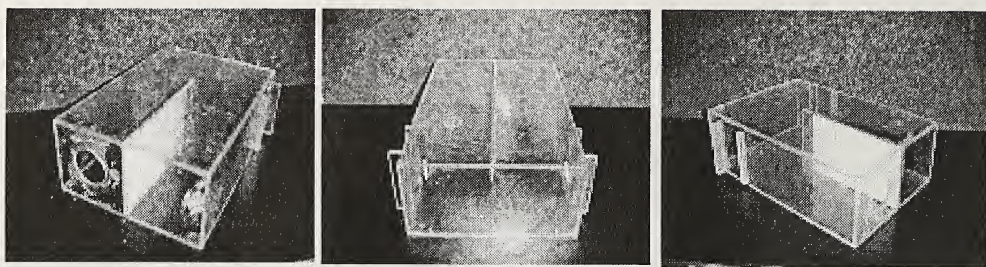
Observations:

Initial introductions with the “twist-to-lock” lid proved to be successful for the octopus but not as intended. The octopus gained access by pulling apart the glued hemispheres of the ball and ignoring the door. Changes in the design of the door and four nylon cable ties overcame the structural flaws of the ball. The elastic bands that hold the door in place were replaced with elastic cord. Later a “Ferretball” was tried and found to be more durable (hemispheres held together with screws) and have a larger capacity. Nice colors too.

The Blind Box

The “blind box” was a clear acrylic box partially divided by a center wall. A hole at one side of the divided end provided the only access to the interior. The box was constructed from the external skimmer box of trickle filter. The open end was covered with a scrap piece of acrylic held in place with nylon cable ties. The drain hole was left open as an access point. Closed off in this way, the box formed a “U” shaped corridor whose end could only be seen from the exterior. Prey items were placed in the far end and could only be gained by reaching blindly around the center-dividing wall. The food items had to be obtained tactilely.





Intended Challenge: Tactile - Remote View

Variable Manipulation of Obstacles

Notes:

Poor ...1...2...3...4...5... Good

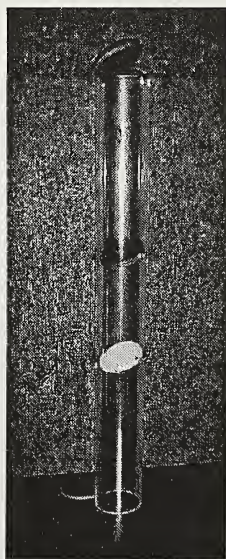
- Acceptance level.	.	.	.	.	.	2
- Ease of Construction.	.	.	.	.	.	5
- Cost.	.	.	.	.	.	5
- Durability.	.	.	.	.	.	4
- Ease of Retrieval.	.	.	.	.	.	4
- Ease of Preparation.	.	.	.	.	.	5
- Capable of presenting multiple sizes of food .	.	.	.	.	.	5

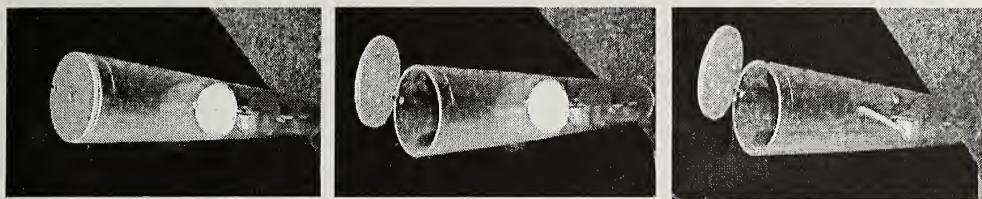
Observations:

The octopuses met the blind box with limited enthusiasm. The puzzle seemed to present a limited challenge as it was readily solved. The back panel was removable and various objects were often placed in the box to provide additional obstacles. These seemed to only provide limited difficulty. The acceptance rate was approximately 70 – 75%. It is noted that this is the only hunting puzzle that is square or rectangular in shape.

The Tube

The tube consisted of a 3” diameter acrylic cylinder salvaged from a broken protein skimmer. Left over PVC disks from hole saw cuts were used to make doors. Two smaller disks were notched at opposite ends to allow for a small piece of 3/8” rigid tubing. The small pieces of tubing formed a shaft that the disk could rotate on. These smaller disks were mounted inside the cylinder to form a 10” long chamber with a door at each end. Additional disks were added to both ends of the tube with single cable ties to form flaps. Access to the center of “the tube” required lifting a flap on the end and rotating one of the inside doors. Pieces of rigid tubing were placed as door stops allowing the doors to be rotated in one direction. These “door stops” could be added or removed on either side of the rotating doors. This proved to make the tube puzzle capable of varying degrees of difficulty.





Intended Challenge: Tactile – Remote View – Manipulation of Obstacle
Notes:

Poor ...1...2...3...4...5... Good

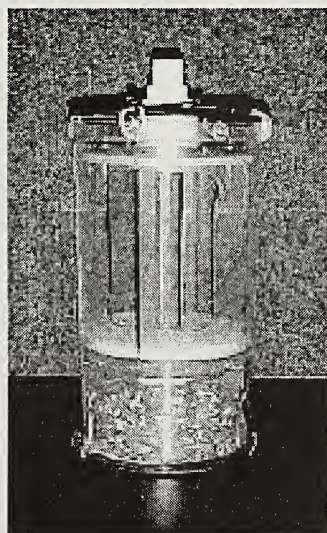
- Acceptance level.	.	.	.	.	.	4
- Ease of Construction.	.	.	.	.	.	3
- Cost.	.	.	.	.	.	3
- Durability.	.	.	.	.	.	3
- Ease of Retrieval.	.	.	.	.	.	3
- Ease of Preparation.	.	.	.	.	.	4
- Capable of presenting multiple sizes of food .	.	.	.	.	.	2

Observations:

The doorstops were added after the puzzle was solved with regularity. This exposed a flaw in the design. The shafts that held the internal doors proved too weak as the doors were removed rather than manipulated. A later model used half-inch thick PVC disks that were taped at either end allowing the shafts to be glued in place. Small sections of vinyl tubing were added to the shafts of the doors. These prevented the doors from swinging freely and held the food in the center section. A larger diameter and length of tube was used which increase the variety of food that could be presented. This length of the tube allowed for improved visibility with larger specimens.

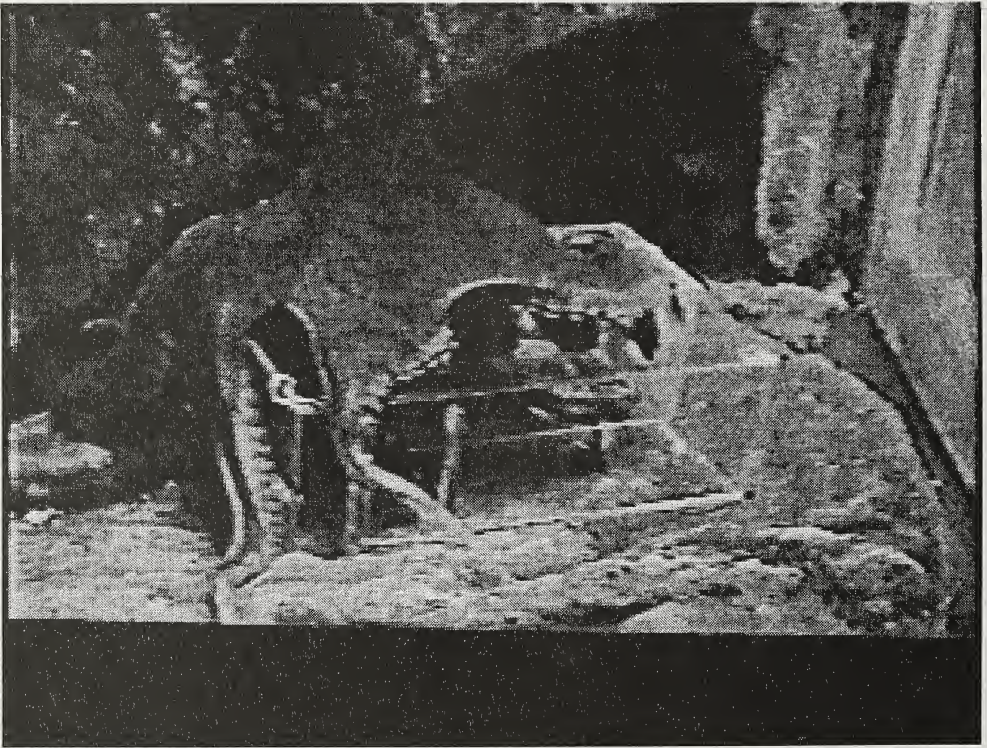
The Roto-Cylinder

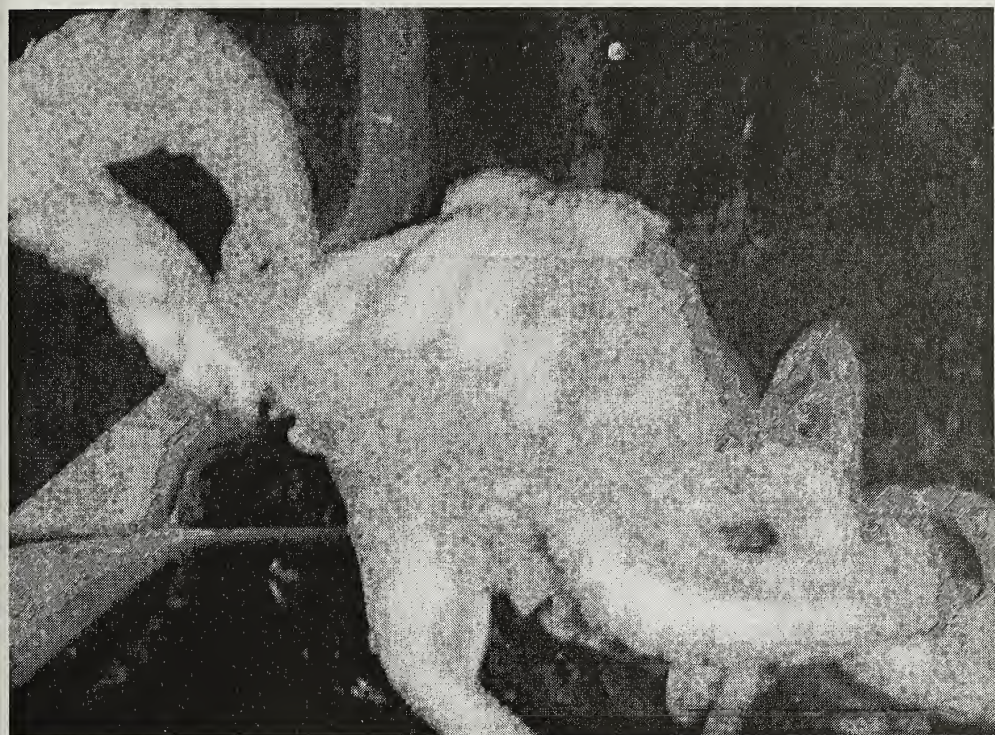
The “roto-cylinder” was a miniature revolving door in a plastic can. It was constructed from the main cylinder of a Magnum® canister filter. The filter’s original design allowed for a PVC pipe to be mounted along the cylinder’s axis. This formed a shaft for the revolving door. The “door” was made of a slightly larger diameter pipe, rectangles of clear acrylic, and PVC disks from hole saw cuts, put together to resemble a small paddle wheel. When placed on the shaft in the cylinder, the rectangles and the cylinder walls, formed small compartments that could be rotated to an opening cut on the side of the cylinder. A top and bottom were made from the two halves of an empty wire spool held in place with nylon cable ties. The motor housing on the bottom of the Magnum® cylinder was filled with gravel and capped with the wire spool. This bottom weight made the puzzle sit up right when presented.



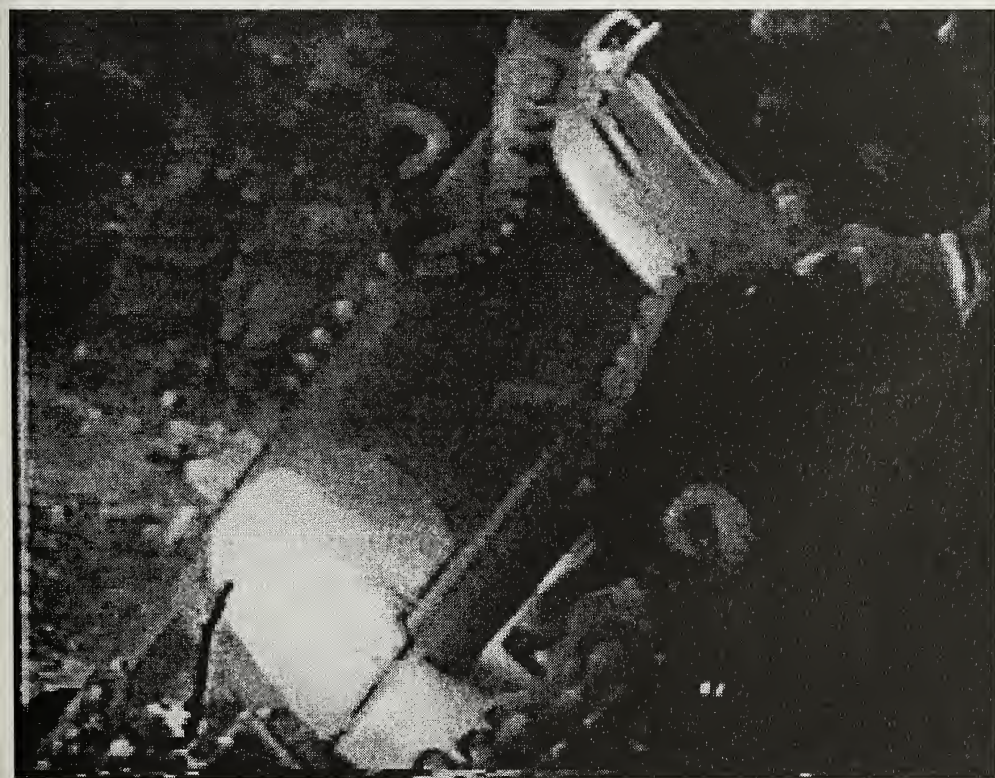


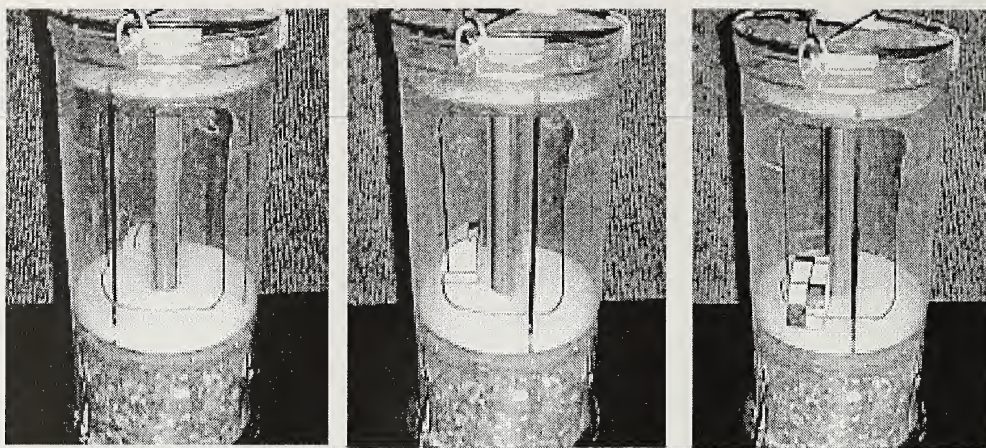
Photos (taken from videotape) show the octopus interacting with the “prey puzzles” - at top with The Jar and below with The Blind Box.





Photos (taken from videotape) show the octopus interacting with the "prey puzzles" - at top with The Tube and below with The Roto-Cylinder





Intended Challenge: Remote View –Complex Manipulation of Obstacle

Notes:

Poor ...1...2...3...4...5... Good

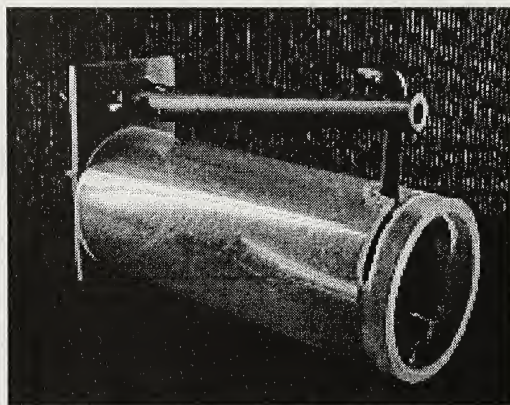
- Acceptance level.	.	.	.	.	.	3
- Ease of Construction.	.	.	.	.	.	2
- Cost.	.	.	.	.	.	4
- Durability.	.	.	.	.	.	2
- Ease of Retrieval.	.	.	.	.	.	4
- Ease of Preparation.	.	.	.	.	.	4
- Capable of presenting multiple sizes of food .	.	.	.	.	.	3

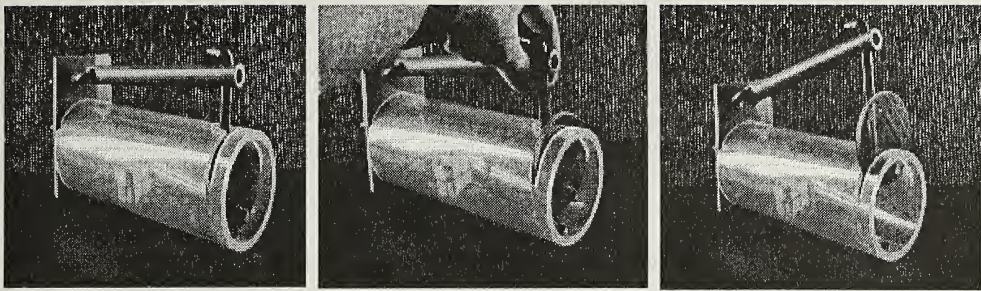
Observations:

The durability of the device decreased as the octopuses grew. Larger specimens were strong enough to loosen the internal panels from their settings and impair the movement of the revolving section. No design improvements have as yet been made. This device proved to be the most challenging, sometimes taking several minutes for the octopus to solve.

The Travel Mug

The Travel Mug was constructed from a 9-inch section of 3-inch clear PVC pipe. A 3 x 5-inch rectangle of 1/4inch sheet PVC was attached to close off one end of the pipe. The handle was made from a 7 3/4-inch piece of 1/2-inch diameter PVC pipe. Two pieces of 3/8-inch PVC rod were heated and bent, then threaded through holes drilled in the handle. One rod was shaped like an omega and formed the attachment point to the rectangular base. The other rod was "Z" shaped with one end attaching to the handle and the other to a 3-inch diameter "hole saw" disk that formed a door. A slot was cut in the clear pipe to allow the rod and disk to slide up and out through the pipe. The "S" shape of the rod stopped the disk/door from being pulled clear of the pipe. Lifting up or pushing down on the handle effectively opened or closed off the open end of the clear pipe. Access to the center of the pipe could only be accomplished by pulling up on the external handle.





Intended Challenge: Remote View – Remote Complex Manipulation

Notes:

	Poor	...1	...2	...3	...4	...5	Good
- Acceptance level.	.	.	.	.	.	.	4
- Ease of Construction.	.	.	.	.	.	.	2
- Cost.	.	.	.	.	.	.	4
- Durability.	.	.	.	.	.	.	5
- Ease of Retrieval.	.	.	.	.	.	.	5
- Ease of Preparation.	.	.	.	.	.	.	5
- Capable of presenting multiple sizes of food .	.	.	.	.	.	.	5

Observations:

The PVC rods were heated using a small blowtorch and water-cooled. The ends of the rods that passed through the base and the disk door were later heated and flattened to prevent them from being pulled off. This design proved to be the most durable of the devices. The small size caused the manipulation to be concealed at times, but was easy to visualize. The first introduction was met with much interest and took an adult octopus approximately 16 seconds to solve. It took four hours to construct.

Summation

The development of the “prey puzzles” significantly improved the activity level of the housed specimens. While there was no apparent increase in longevity, the visitor interest in the exhibit rose dramatically. A progression of complexity seemed to occur as each device was made. This was mainly due to the relative ease with which the puzzles were solved. It quickly became a challenge to stump the octopus. This was rarely accomplished for any duration.

It must also be noted that the puzzles listed are but a few of those presented. Most were of simpler designs that either proved too ungainly or had failing marks on ease of use or retrieval. A few mass-produced enrichment devices designed for primates were presented as well. These proved too simplistic as they relied on the movement limitations of a rigid skeleton. One of note, an acrylic peanut maze, was solved in less than six seconds. It became apparent that if the interest was there the solution was quick to follow.

Behavioral trends were also observed. The readiness of the individuals to release the devices varied. Younger/ smaller specimens tended to acquire the prey and quickly discard the device. As they grew larger, the puzzles were held and inspected for longer periods even after the prey was acquired. Overall the individual’s proficiency of solving the given puzzle increased with the number of presentations. However, the ease of finding the solution for each puzzle varied per individual. Some puzzles seemed to offer little challenge to some, and great difficulty to others. The proficiency level for the more complex puzzles, specifically the roto-cylinder, would drop if the device had not been presented for several feedings. The simpler puzzles seemed to suffer little loss in proficiency if not presented to the octopus for some time.

In conclusion, the introduction of the devices had an overall positive effect. The octopus displayed a marked increase in its investigation of the exhibit and the items found within. The public showed keen interest in this hunting, and the aquarists routinely had their egos kept in check by the animal's prowess. If any negatives could be noted it would be that any objects introduced into the exhibit were often met with increased interest including those regularly used in tank maintenance, which made routine cleaning more of a challenge.

This is intended as a first installment in the compilation of an Octopus Enrichment Notebook. Ideas, suggestions or submissions can be addressed to MLR@clevelandmetroparks.com or (216)-661-6500 Ex.4485. Copies of the notebook are available by request.

References

Hanlon, Roger T. & Messenger, John B. (1996) *Cephalopod Behavior*
Cambridge University Press, New York, NY

Nesis, Kir N. (1987) *Cephalopods of the World* T.F.H. Publications, Inc., Neptune City, NJ

Shepherdson, David J., Mellen, Jill D., and Hutchins, Michael. (1998) *Second Nature: environmental enrichment for captive animals* Smithsonian Institution Press, Washington, DC.

L. A. Zoo Euthanizes Black Rhino With Mysterious Disease

After battling a mysterious disease for a number of months, a 0.1 blackrhinoceros named "Sweet Pea" had to be euthanized in mid-January. The 24-year-old animal began experiencing health problems last summer which included weight loss, diminished appetite complicated by anemia and chronic iron overload. While dozens of tests were performed on Sweet Pea by the L.A. Zoo veterinary staff, no cause for the ailment had been found. The Zoo's chief vet Cynthia Stringfield, was quoted as saying the animal may have had cancer or a fungal infection. Gross necropsy results are pending.

Sweet Pea was born at the Cincinnati Zoo in 1976 and came to Los Angeles three years later. According to keeper staff she was a very "people-oriented" animal, even at the end when she was no longer able to stand up on her own. She had been given the name Sweet pea because of her docile and sweet demeanor.

The Los Angeles Zoo continues to house two black rhinos, Buster and Shebani, in its collection. The Zoo also has three other black rhinos on breeding loans to other zoos. It is estimated that 2,500 black rhino remain in the wild with approximately 150 living in zoos worldwide.

Milwaukee County AAZK Chapter

We again had another successful spaghetti dinner, raising a little over \$2000.00. We intend to use some of the proceeds to help support sea turtle research projects.



During our annual Halloween events, our chapter sold carmel apples. This, too, was a big hit. Proceeds from this event will go to the AAZK Endowment Fund.

Elections for new officers have taken place and the 2000 officers have been re-elected to serve in 2001. They are:

- President.....Karen Rabideaux
- Vice-President.....Clay Ecklund
- Treasurer.....Lisa Guglielmi
- Secretary.....Mark Scheuber
- Liaison.....Earl Conteh-Morgan

-----Earl Conteh-Morgan, Liaison

Kansas City AAZK Chapter

New officers for 2001 are:

- President.....Kristen Wolfe
- Vice President.....Tracy Divis
- Secretary.....Angle Higgins
- Treasurer.....Sherri Doherty
- Chapter Liaison.....Aimee Goldcamp

What's Your Chapter Been Up To?
Do you have new officers? A sucessful fundraiser? A new logo? Be sure and send in your latest Chapter News to share with the AAZK membership. We want tohear about all the great activities and projects you are involved with, including conservation efforts and professional development.

Chapter News Notes

Jacksonville Zoo AAZK Chapter

The year 2000 was very eventful for the Jacksonville Zoo AAZK Chapter. We had the biggest Bowling for Rhinos event in the Jacksonville Zoo's history, purchased many acres of rainforest through the Center for Ecosystem Survival (CES), adopted a manatee, and held a successful face-panting fundraiser at our Zoo's annual Spooktacular event.

During our December meeting the officers for 2001 were elected. They are:

- President.....Amanda Rice
- Vice President.....Ken Cole
- Secretary.....Samantha Krug
- Treasurer.....Lori Bergholz
- Liaison.....Kelli Whitney

Our Chapter is looking forward to an eventful year during 2001, filled with conservation fundraising and fun events.

---Amanda Rice, President



*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@ksccable.com< We are no longer located at the Topeka Zoo, so please note new address!*

ANIMAL KEEPER...The Birmingham Zoo is working to grow and diversify its applicant pool for Animal Keeper positions. A degree in biology, or related field is preferred. Potential applicants are needed for future openings in the Primate, Carnivore, Hoofed Stock, Pachyderm, Bird, and Reptile departments. Please send cover letter and resume to: Marcia Riedmiller, Mammal Curator, The Birmingham Zoo, 2630 Cahaba Road, Birmingham, AL 35223. E-mail: mriedmiller@birminghamzoo.com Resumes will be kept on file for one year. EOE

BIRD KEEPER...The Birmingham Zoo is currently seeking a Bird Keeper. A degree in biology or related field is preferred. Previous avicultural experience is required. Duties will include inspection, feeding, cleaning, maintenance of the animals and exhibits in assigned areas and other duties as assigned by the Curator or Senior Keeper. Must have good observational and record keeping skills, the ability to work as a team member, and be able to interact with the visitors in a positive manner. We offer an excellent benefits package. The salary is commensurate with experience. EOE To apply, send a cover letter and resume to: Tim Snyder, Curator of Birds, The Birmingham Zoo, 2630 Cahaba Road, Birmingham, AL 35223. FAX: (205)879-9426, E-mail: Tsnyder@birminghamzoo.com

ZOOKEEPER...Woodland Park Zoological Gardens is seeking to fill full and part-time zookeeper vacancies. Additionally, results of interviews will be used to create a roster from which any new full or part-time vacancies opening up in the next 12 months will be filled. **Primary Duties:** Care and maintenance of a large and diverse collection of zoological specimens. Clean animal exhibits, administer medications under the supervision of veterinarians, maintain and make minor repair of exhibit enclosures, observe animal behavior, social interaction, feeding and breeding to determine animal health, security, and well-being based on established procedures. Provide daily enrichment and perform operant conditioning and training. Assist in zoo research programs and maintain familiarity with technical literature relevant to the care and maintenance of zoo specimens. Participate in the zoo's conservation education efforts by providing keeper talks, docent training, and public programs. **Qualifications:** Requires two years paid experience in the care and maintenance of zoo specimens, or a combination of education and/or training and/or experience that provides an equivalent background. Bachelor's Degree in Zoology or a closely related field is desirable. Requires knowledge of all aspects of animal care including husbandry, operant conditioning and training, animal behavior, nutrition, reproductive physiology and animal diseases. Ability to care for and control a wide variety of exotic animals, to interact positively with the public, and to evaluate animal behavior. **Salary** begins at \$16.50/hour. The City of Seattle offers regular employees a vision plan, a choice of two dental plans, and a choice of three health care plans covering employee, spouse/domestic partner and dependents, retirement plan, paid vacation, sick leave, 12 paid holidays a year and other optional benefits. **How to Apply:** Send cover letter and resume by February 27 to S. Bergstrand, City of Seattle Personnel, 1226 Dexter Horton Building, Seattle, WA 98104-1793 or e-mail to talent.bank@ci.seattle.wa.us as text or attached Word document. The City of Seattle is an equal opportunity employer committed to diversity in the work force. Successful candidates will be required to undergo pre-employment drug screening and physicals.

PARKS AND RECREATION MAINTENANCE SUPERVISOR...supervisory position responsible for supervision, planning and coordinating maintenance and construction projects for the parks, athletic fields, swimming pools, zoo, fairgrounds and other associated city facilities. Requires Bachelor's degree in Park Management, Horticulture, Landscape Architecture or related field, plus 1-3 years park management/maintenance supervisory experience, or any combination of education and experience

that provides equivalent knowledge, skills and abilities. Valid Wisconsin driver's license required. The following certificates are preferred but not required: Certified Park and Recreation Professional, Certified Pool Operator, Wisconsin Commercial Applicators Registration and Certified Playground Safety Inspector. Salary range is \$38,407.00 minimum to \$45,429.00 midpoint, to \$52,617.00 maximum. The City of Marshfield offers an excellent fringe benefits package. Residency within the School District of Marshfield required within 60 days after completion of probationary period (6 months). To apply, submit City of Marshfield Application for Employment, a letter of introduction, and a resumé to the Human Resources Office, City of Marshfield, 630 S. Central Ave., 7th Floor, P.O. Box 727, Marshfield, WI 54449-0727. Phone (715) 387-6597; E-mail hr@ci.marshfield.wi.us EOE. Application deadline is **16 February 2001**.

ELEPHANT KEEPER...Wild Adventures has an immediate opening for an experienced elephant keeper. We're looking for an individual to work with two Asian cows. In addition to the upkeep of the elephants, this person must be willing to help with other animal keepers as needed. Please send resumé to: Peggy Husbands, c/o Wild Adventures, 3766 Old Clyattville Rd., Valdosta, GA 31601. Wild Adventures is a drug-free workplace.

ZOO KEEPERS (MAMMALS, BIRDS, HERPS, FISH, INVERT)...up to 15 new keeper positions are being hired to work with a diversity of taxa. Keepers with broad generalized experience as well as those with specialized experience in beekeeping, hot snakes, bats, carnivores (e.g., bears, jaguar, puma), shorebirds, raptor/bird shows, saltwater aquaria/touch tanks are encouraged to apply. Responsible for providing animal care, monitoring animal health, maintaining cleanliness of animal areas, and minor exhibit modification. Staff will also provide public interaction in both formal and informal presentations. Positions require a high school diploma or equivalent, one-year zoo keeping experience, good communication/organizational skills, and ability to work well with others in a team environment. Starting salary \$11.01/hr., plus benefits. **Positions are open until filled.** Send letter and resume to Assistant Human Resources Director, Fort Worth Zoo, 1989 Colonial Parkway, Fort Worth, TX 76110.

ANIMALKEEPER...position open in the West Los Angeles area. Start on an On-Call basis 4-5 days per week. May evolve into a full and/or part time keeper position with full benefits. Qualifications: Two (2) years animal management experience. Must consider this position as primary employment, and be available 7 days a week. Responsibilities: cleaning facilities, feeding, handling and training. Primarily birds and primates, but also reptiles, other exotic mammals, marine aquariums, and freshwater pond systems. Send resumé to: John Heston, Supervisor, Animal Department, 10236 Charing Cross Rd., Los Angeles, CA 90024. E-mail: jnheston@playboy.com

AVICULTURE INTERN...interns receive intensive hands-on training in the care and maintenance of a large bird collection. They will experience all aspects of bird husbandry including general cleaning, handling, incubation, record keeping, public education, etc. Seeking college students or recent graduates with an interest in avian management/zoo biology. Interns will work with aviculturists for a minimum three-month period. This is a volunteer position with on-site housing provided. Possible stipend. Internships are available year-round. Our interns receive the same training as any new staff member, and most have gone on to paid positions in large AZA accredited institutions. Send cover letter and resumé with references to: Tracey Aviary, 589 E. 1300 South, Salt Lake City, UT 84105. Fax to: (801) 596-7325. ATTN: Kim Sorensen/Jennifer Morris.

SEAWORLD SAN ANTONIO EDUCATION DEPT. INTERNSHIPS...Announcing 2001 Education Internship Program for students seeking degrees in education, sciences, recreation or tourism. There are three types of internships available: 1) Instructional Internships 2) Camp SeaWorld (Day Camp) Internships and 3) Adventure Camp (Residential Camp) Internships. Internships are available from three to ten months. For further information and to obtain an intern information/application packet please contact: SeaWorld San Antonio Education Dept., Internship Program, 10500 SeaWorld Drive, San Antonio, TX 78251-3002 or call 1-800-700-7786.

PRE-VET FELLOWSHIP.. Seneca Park Zoo offers a funded, ten-week, summer pre-vet fellowship

for college students. The pre-vet fellow will receive a stipend of \$250.00 per week. The pre-vet fellow will assist the veterinary staff in all aspects of the veterinary care program, will complete a retrospective or cross-sectional research project jointly identified by the fellow and veterinary staff and will rotate through all animal care sections of the zoo. Minimum qualifications include: completion of at least two years of study in a pre-veterinary college curriculum, at least a 3.0 GPA and at least 100 hours of experience in a large and/or small animal veterinary hospital. For an application and more information, please contact Dr. Jeff Wyatt, Seneca Park Zoo, 2222 St. Paul Street, Rochester, NY 14621. e-mail: gcaulkin@mcsls.rochester.lib.ny.us. The application deadline is **28 February 2001**.

HERPETOLOGY INTERNSHIP... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2001 spring, summer, and fall season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles.

Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of - snakes in the area, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required.

To apply send a cover letter and resume to: Kristen Wiley, Internship Coordinator , Kentucky Reptile Zoo , 200 L & E Railroad, Slade, KY 40376. **Deadline for applications is: SPRING - 15 February 2001; SUMMER - 15 March 2001; and FALL - 1 June 2001.**

*Positions posted with AAZK, Inc. may also be found
on our website at www.azk.org*

*Also, you may want to check out the AZA Member Institution
job listings at <http://www.aza.org>*

French Zoo Seeks Keeper Exchanges

The Paris Zoo (France) would be interested in a 2-3 week keeper exchange program with zoos from the USA. The Paris Zoo would welcome keepers from participating institutions and would offer housing during their stay in Paris. Keepers from both institutions will learn and work with other keepers. Our collection includes large mammals (elephants, large ungulates), primates (specially rare lemurs including Aye Aye and Sifakas), carnivores and birds. We have 43 keepers working at the zoo in five different departments: Bovids/giraffes, big rock/ big cats, elephants/bears, lemurs, Monkeys/zebras.

Interested institutions can contact: Alexis Lécu or Florence Ollivet, Parc Zoologique de Paris, Service Vétérinaire, 53 Avenue de St Maurice, 75012 Paris, FRANCE

Tel 33 1 44 75 20 00

Fax : 33 1 43 43 54 73

E-Mail : pzpveto@mnhn.fr

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All members outside U.S. &
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Those not connected with
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Name on card _____ Expiration date _____

Signature _____

Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



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MARCH 2001
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Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

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About the Cover....

*This month's cover features the Mule Deer (*Odocoileus hemionus*) drawn by Mary Deckert, a Docent at the Los Angeles Zoo. Its habit of bounding into the air and landing on all fours has earned this species the nickname "jumping deer" among Canadian hunters. The mule deer is the most abundant big-game animal in western North America and is found from Alaska to Mexico, from cold mountains to hot deserts. Stockier than the whitetail deer, it stands 3 to 3 1/2 feet and weighs 125-400 lbs. (56-181 kg) for males; and 100-150 lbs. (45-68 kg) for females. Its big, black-fringed ears give the mule deer its name. Mule deer bucks spend the winter in the herd, which is often led by an old doe. Average lifespan is 16 years. Thanks, Mary!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKF. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$3.00 each.

E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@kscable.com

AAZK Website Address: www.aazk.org
Bulletin Board Access: type "aazk" in member name box;
type "Elvis" in password box.
BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



Chapters Acknowledged for Contributions

The AAZK Board of Directors and the Administrative Office staff would like to thank the following AAZK Chapters for their recent donations to the Association: Omaha Chapter AAZK (Omaha's Henry Doorly Zoo) \$300 for the general operating budget; AAZK Milwaukee Chapter (Milwaukee County Zoo) \$500.00 to the AAZK Endowment Fund and \$150.00 to the International Outreach Committee; Chesapeake AAZK Chapter (Salisbury Zoo) \$2000.00, undesignated; and the Dallas Zoo Keeper Association (Dallas Zoo) \$500.00 to AAZK Endowment Fund). Such continuous generosity on the part of AAZK Chapters as well as individual AAZK members allows the Association to carry out its projects and programs as well as plan for a secure financial future for AAZK, Inc.

Chapter Finds Clouded Leopard Project

The Point Defiance Zoo & Aquarium (Tacoma, WA) AAZK Chapter has founded The Clouded Leopard Project, a fundraising and educational effort supporting clouded leopard research and captive breeding. Currently the Project is raising funds to support Lon Grassman's carnivore survey in Thailand's Phu Khieo Wildlife Sanctuary. Lon has radio-collared and camera trapped several clouded leopards in hopes of gathering important information about the habits of this little-known cat. Please visit our website at www.cloudedleopard.org to learn more about the project or to purchase clouded leopard t-shirts and note cards. For information about offering these products for sale at your facility, contact Karen Povey at (253) 404-3670 or OnSafari@aol.com

Zoo Keeper Safari to Lewa - submitted by Patty Pearthree

I will be leading a trip to Lewa Wildlife Conservancy in Kenya December 1-10, 2001. There is currently space left for four people. I have worked hard to get the costs at a "keeper level". I will be paying the same costs as everyone else. Lewa is charging a bare minimum cost of \$150/day which includes lodging, food, vehicles, conservancy fees, guides - everything but personal expenses.

The total cost of the trip is approximately \$2,950.00. This included round-trip airfare originating almost anywhere in the U.S., round-trip flights from Nairobi directly to Lewa, hotel in Nairobi, taxi transfers and eight nights at Lewa. If interested, please contact Patty Pearthree at (919) 678-0449 or e-mail at ppear3@aazk.org

Rhino Keeper Workshop Scheduled at San Diego

The San Diego Wild Animal Park is planning to host a three-day rhino keeper workshop from 8-10 May, 2001. This workshop will focus on the keeper's role in the captive management of all rhino taxa and how that role can facilitate and enhance captive rhino management. The event will include both speaker sessions and active participation by attendees in working groups. The workshop is being sponsored by the Zoological Society of San Diego, and is endorsed by the International Rhino Foundation and the Rhino TAG.

For further information contact: Rhino Keeper Workshop Coordinator, c/o Farshid Mehrdadfar, San Diego Wild Animal Park, 15500 San Pasqual Valley Road, Escondido, CA 92027-7017; Tel. (760) 796-5681; Fax - (760) 480-9573; e-mail: Rhinos@sandiegozoo.org

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities: *The Conservation, Preservation and Restoration (CPR) Grant* – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration.

The Zoo Keeper Grants in Research – Two \$750.00 grants are funded to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member in good standing of AAZK, Inc.

Deadline for application submission for either grant option is **31 May 2001**. Successful grant recipients will be announced at the AAZK National Conference in Toronto, Canada in early October 2001. The grant cycle runs from 01 January 2001 to 31 December 2001. For further information or an application packet visit the AAZK website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committee Chair, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504; e-mail: jrsotter@iserv.net; Fax: (616)336-3709. Be certain to specify whether you are requesting information on the CPR or Research Grants.

Correction From February Issue

In the article entitled “Spotlight on Zoo Keeper Grants in Conservation (CPR Grant)” by Judy Harkelroad, Senior Village Ranger at Wildlife Safari, Winston, OR, the last few lines of the article were inadvertently left off in the final printing. The last sentence of the article (pgs 63-64) should read: “We consider the program to be a huge success and owe thanks to the National AAZK, NAPCOR and all the staff at Wildlife Safari who continue to help with the recycling endeavor.” Judy’s article was a result of an AAZK CPR Grant she was given. Our apologies to Judy for the error in publication of her report.

From the President

Dear Membership;

I have often asked myself how many people actually will read the message from the President that appears in the *Forum*. I would like everyone who reads this message to please ask other members if they have read this message.

In the February issue there was a call for nominations for AAZK Awards which are now being accepted. I would like all members to look over these awards to see if they know of anyone deserving of these awards. I know many are but they must be nominated. This is where you come in. Please nominate your peers for the recognition that they deserve.

Also in the February issue there also was a request for any Chapter that was interested in submitting a bid to host the 2003 AAZK National Conference. The deadline for completed bids is 15 March 2001. If your Chapter is interested please contact Ed Hansen (zked9@cs.com) asap.

The dates for the Mid -Year AAZK Board of Directors Meeting have been set for April 21&22. If anyone has any issues that they would like the Board to look into please feel free to send me an email through our website. How many of you reading this have visited our website recently and how many of you have taken advantage of the bulletin board question and answer page ? The bulletin board can be very helpful if you have questions or answers to the questions asked. Please visit our website frequently and make use of this helpful resource.

Chapters should have their Chapter recharter packets completed and sent back to the Administrative Offices by this time. Does your Chapter have their packet sent in ? If not please do so as soon as possible .

And finally, this is an election year for our Board of Directors. I have a request for all professional members to look over the ballots they receive and vote. It is truly amazing how few of the membership who have the right to vote actually will take the time to help steer the direction of this organization. Please make an effort this year, and ask other professional members if they have sent their ballots in.

I know I have asked a lot of all of you in this message, but all that I am really asking is for you to be an active part of your organization not just a bystander.
-----Scott M. Wright, AAZK
President

Coming Events

National Wildlife Rehabilitators Association 19th Annual Symposium - 13-17 March 2001 in Lake Tahoe, CA. For more information, please contact NWRA, 14 North 7th Ave., St. Cloud, MN 56303; phone (320) 259-4086; e-mail at nwra@nwrwildlife.org or visit the NWRA website at www.nwrwildlife.org

German Otter Symposium - 14-16 March 2001. Hosted by the German Otter Centre in Hankensbüttel near Hanover. The 2001 seminar will cover the Eurasian otter and the Asian small-clawed otter. Seminar will cover aspects of design and construction of enclosures, husbandry, feeding and breeding guidelines. For further info contact Aktion Fischotterschutz, OTTER-ZENTRUM, 29386 Hankensbüttel, Germany; Fax +49-5832-980851; e-mail - Aktion.Fischotterschutz@t-online.de

Riddle's Second Elephant Ultrasound Workshop - 28 March - 1st April 2001. For further info please e-mail: elephantfarm@alltel.net

Second European Zoo Nutrition Conference - 6-9 April 2001 in Southampton, UK. More detailed information about the program and registration/abstract submission deadlines is available at <http://www.marwell.org.uk> To join the conference mailing list, send your contact details by email to: Nutrition2001@marwell.org or by post/fax to: Zoo Nutrition 2001, Marwell Zoological Park, Owslebury, Winchester, Hampshire, SO21 1JH, United Kingdom. Fax: (0) 1962 777511.

13th International Conference on Bear Management and Research - 21 - 25 May 2001 Jackson Hole, WY. For further information visit: <http://outreach.uwyo.edu/conferences/bears>

International Elephant and Rhino Research Symposium - 7-11 June 2001 at Vienna Zoo Schoenbrunn, Austria. For further information contact: Hschwammer@zoovienna.at Or visit <http://www.zoovienna.at>

The Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or you may contact the local hosts Andy Balustein

(blaustea@bbc.orst.edu) or Lynne Houck (houck@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aaav.

American Association of Zoo Veterinarians - September 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of wildlife Veterinarians and the Nutrition Advisory Group. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (510) 892-4812; fax (610) 892-4813; e-mail aazv@aol.com

International AAZK Conference - 30 Sept. - 4 Oct. 2001 in Toronto, Ontario, Canada. See this issue of AKF for Call for Papers, Registration/Hotel Forms, Pre- and Post-Conference Trip Details, etc. or visit the AAZK Conference website at: <http://aazk.toronto.tripod.com>

5th International Conference on Environmental Enrichment - 4 - 9 November 2001 at the Taronga Zoo, Australia. For further info contact: Mhawkins@zoo.nsw.gov.au Or visit <http://www.zoo.nsw.gov.au>



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AAZK Award Nominations Are Now Being Accepted for 2001

The AAZK Awards Committee is accepting nominations for the **Lifetime Achievement Award (LA)** and the **Meritorious Achievement Award (MA)**. Nomination criteria for these two awards are listed below. Nomination criteria for the **Jean M. Hromadka Excellence in Zookeeping Award (EZ)**, **The Certificate of Merit for Zoo Keeper Education (CMZE)**, and **The Certificate of Excellence in Exhibit Renovation (CEER)** were published in the February 2001 issue of *AKF*. These awards will be presented at the 2001 AAZK Conference in Toronto, Canada. The deadline for all award nominations is **1 June 2001**. Information concerning the qualifications, nomination procedure, selection procedure and an explanation of the awards may be obtained by contacting Janet McCoy, Chair, AAZK Awards Committee, Oregon Zoo, 4001 S.W. Canyon Rd., Portland, OR 97221.

Lifetime Achievement (LA) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Lifetime Achievement Award presented by the AAZK Awards Committee. This award is to be given at the end (retirement) of a keeper's career. The purpose of the award is to recognize outstanding commitment to professionalism as a zoo keeper over a long period of time, and significant contributions to the community.

The Lifetime Achievement Award was established by the 1993 Awards Committee, Janet McCoy, Chair. Rachel Rogers proposed the award to the AAZK Board of Directors. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee **must** be a full-time keeper retiring from a career of zoo keeping and employed in any North American zoological institution, aquarium or related facility.
2. The nominee must have been employed at least twenty years on permanent status at a zoo, aquarium or related facility.
3. The nominee **must** be nominated by **two** of his or her peers who have also been employed at that same zoo, aquarium or related facility. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of peers or colleagues.
2. List and **document** outstanding achievements: exhibits, breeding, education, project participation, papers, etc. **Verification** of these facts must be signed by the zoo director, curator, or immediate supervisor of the individual being nominated.
3. Describe extra activities outside of zoo, aquarium or related facility work: working with conservation groups, animal related youth groups, rehabilitation wildlife officials, etc.
4. Paragraph of why the nominee fits the criteria.
5. Provide 3 - 5 references.
6. Deadline for nominations is **JUNE 1st** of each year.

Selection Procedure:

The Awards Committee, consisting of five keepers, will independently review each nominee.

Meritorious Achievement (MA) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Meritorious Achievement (MA) Award presented by the AAZK Awards Committee. The purpose of the award is to recognize professional members of AAZK and AAZK Chapters, in good standing in the Association, for their extra work performed outside the keeper level of performance. This includes keeper participation in AAZPA Bean Award projects, dedicating time to other zoo related projects (conservation, wildlife education and individual breeding projects) and educating others in such programs as Scout Patch Programs.

The MA was established in 1982, by Mike Crocker, 1980-1985 CHAIR, as a means of recognizing work done outside of the scope of the Excellence in Zookeeping award. It is the only award presented by the awards committee that you have to be a member of the Association to receive. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee must be a full-time keeper and professional AAZK member employed in any North American zoo, aquarium, or related facility. In the case of an AAZK Chapter, it must be 'in good standing' having an up-to-date charter with the AAZK.
2. The nominee must have been employed at least one year on a permanent basis at a zoo, aquarium or related facility. In the case of an AAZK Chapter, it must have been active for at least one year.
3. The nominee must be nominated by his/her peers or colleagues, while s u p p o r t i n g nominations may be submitted by other zoo, aquarium or related facility personnel. The nominators need not be from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of a peer or colleague.
2. List and document the outstanding achievements: AAZPA Bean Award project participation, exhibits, breeding, conservation, etc.
3. The deadline for nominations is JUNE 1st of each year.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

The character of the award includes either a plaque or certificate, letter of notification to the institution's director and national recognition by professional journals. Such journals include: the American Zoo and Aquarium Association (AZA) and the Canadian Association of Zoos and Aquariums (CAZA) Newsletters, Animal Keepers' Forum (AAZK), Awards, Honors and Prizes: Volume 1; United States and Canada. The latter is published by Gale Research Company based in Wheaton, MD and found in medium to large sized libraries across the U.S. and Canada.

Award Nominations should be submitted to:

Janet McCoy, Awards Chair

The Oregon Zoo, 4001 SW Canyon Road, Portland, OR 97221

Deadline for Nominations is 1 June 2001

ABC's

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

QUESTION

American Zoo. Could you give an overview of the use of the bridge and maybe some resources related to it?

ANSWER

Part Three of Three. Questions on this topic began in January where I discussed bridging in general and then went into a few specific questions. These continued in February and will be completed this month.

If more than two animals are involved during training, how does one juggle multiple, different bridging stimuli or make one bridging stimulus unique to each animal?

There are different strategies for handling this situation that are dependent on the specific situation you are in. Without this information it is impossible for me to give you one answer. Let's just look at a couple of different approaches.

First, communication and cooperation between the trainers is critical. You cannot be successful without this teamwork. Pencil out the steps and discuss them at length before you even start! Then be consistent in your application and strategies.

When working a group of animals you will ideally start by having one trainer per animal. In a zoo situation this is not always possible but I will outline it anyway. If you are able to have one trainer per animal initially, the animal associates the training process with the specific trainer in attendance.

Each person has a different voice or can have a differently pitched whistle or bridging stimulus. Audible devices tend to be favored but you can use visual and tactile, especially if you want to avoid problems. Visual could be a finger point toward the animal or a nod, while an example of physical could be a tap or touch to a certain object or the animal itself.

Using different or multiple bridges can be difficult and can cause confusion. If you are working multiple animals alone then you can use the stationing behavior with one type of bridge and another type of signal to the animal to convey that they are the one expected to work or being rewarded for correct behavior.

If you are doing tandem behaviors (when animals are bridged for doing the same behavior), or if you are working animals in the same area, in the same show or performance, then using different types of bridges can be difficult to do. (If that is your situation, let me know and I can tackle it another time.) In any case, teaching the animal to station and how to differentiate is critical.

Teaching animals to station is indispensable. A station behavior is where an animal is to hold a specific location, usually targeting to a specific area or mark. The animal should remain at that point until released. You can do this individually and in groups. Care must be taken to avoid problems with dominant animals. You usually have to control them first and teach toleration as you work in/with the other animals.

Teaching an animal to ignore or tolerate other working animals is an important part of training in groups. You may also teach the stationed animals to ignore the bridges occurring in the background by using a different type of bridge and by rewarding them for stationing and non-response to the distance bridge and the other working animal(s).

If you use this technique, make sure that you also work each animal on other behaviors and don't just focus on the stationing while you train only one or two animals. By rotating, you will find all your animals more interested and more cooperative since they are rewarded for cooperation and toleration AND because they also have the opportunity to work and reap the rewards. Each session should be varied don't try to do all the animals all at one time!

Using a stationing position can assist you in controlling animals prior to release and lock-up. You can get a good look at your animals, prevent rushing and uncooperative behavior surrounding gating and doors, and reduce conflict. Take the time to teach this properly and you will save yourself headaches later on.

Remember each animal and situation is different. But keep in mind that your different animals should eventually be worked so that they are responsive to many trainers and many different situations.

When is the use of a general secondary reinforcer (i.e., "good", "keep going" etc.) that is not conditioned as the bridging stimulus appropriate?

This question refers to giving information and feedback to the animal. This has been referred to as a "continue" or "keep going" signal. It also can be an "intermediate bridge" (which was discussed in the last column). Trainers are different in their application of this technique and it actually has to do with preference as to whether or not it is appropriate.

Remember that your consistency and clarity is what is important. You can gauge the appropriateness in application by how your animal responds. If it interrupts the behavior, causes confusion, or interferes with your overall progress, then you should reassess your application of the technique. Your training team should strive for the optimal use of these tools but be careful.

The most common use of this type of bridge is during long duration chains of behavior or during extended husbandry work. In training situations I like to use an intermediate bridge or feedback since it can help guide or clarify confusion.

However, there is a common error that occurs when novice trainers will be too verbal. This can distract an animal or interrupt its train of thought. In other cases the effectiveness of this tool can be extinguished.

Are there times when you would use only a general secondary, or only a conditioned bridge?

Perhaps I am a bit dense but I am not certain of what you are asking here. A secondary reinforcer is also known as a conditioned reinforcer. So, a bridge is a secondary reinforcer AND a bridge is a conditioned reinforcer. It can get confusing. Maybe you are asking about when to use an intermediate bridge versus a terminal bridge?

The terminal bridge signals the end of a behavior or chain. The intermediate bridge signals the animal that it is on the right track and provides encouragement/feedback without terminating the behavior. How you use a bridge can be as varied as your animals and your situation. Remember, training is both an art and a science and that is why some people achieve better results than others.

I appreciate all the letters that have been coming in. It may take me a while to get to you but be patient and keep them coming!

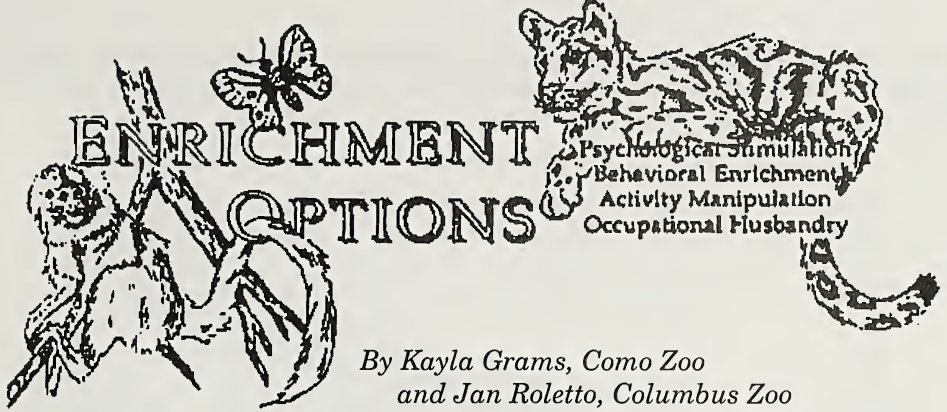
Resources of Interest

- Chance, P. 1998. *Learning and behavior*. Brooks/Cole Publishing.
- Kazdin, A.E. 1994. *Behavior modification in applied settings*. Brooks/Cole Publishing.
- Mazur, James. 1997. *Learning and behavior*. Prentice Hall.
- Michael, Jack. 1998. *Basic principles of behavior*. Western Michigan University.
- Pryor, K. 1999. *Don't shoot the dog!* Bantam Books.
- Rameriz, Ken. 2000. *Animal Training: Successful animal management through positive reinforcement*. Shedd Aquarium Press. (1-888-Sea Stuff)

Previous Columns of Interest

- Guerrero, Diana. Could you give an overview of the use of the bridge and maybe some resources related to it? Part Two of Three. *Animal Keepers' Forum*. AAZK. Vol. 28(02) February 2001.
- Guerrero, Diana. Could you give an overview of the use of the bridge and maybe some resources related to it? Part One of Three. *Animal Keepers' Forum*. AAZK. Vol. 28(01) January 2001.
- Guerrero, Diana. Training Question on Secondary Reinforcers. *Animal Keepers' Forum*. AAZK. Vol. 27(12) December 2000.
- Guerrero, Diana. Training Question On How To Establish A Clicker Training Program. *Animal Keepers' Forum*. AAZK. Vol. 27(07) July 2000.
- Guerrero, Diana. Establishing A Training Program: How Long Does It Take & Steps Required. *Animal Keepers' Forum*. AAZK. Vol. 26(09) September 1999.
- Guerrero, Diana. Common Training Errors 101: Reinforcement & Punishment. *Animal Keepers' Forum*. AAZK. Vol. 25(06) June 1998.
- Guerrero, Diana. Common Training Errors 101: Moving Ahead Before A Behavior Is Stabilized. *Animal Keepers' Forum*. AAZK. Vol. 25(01) January 1998.
- Guerrero, Diana. Common Training Errors 101: Understanding Applications of the Bridge & Bridging Criteria. *Animal Keepers' Forum*. AAZK. Vol. 24(09) Part One: Sept 1997.
- Guerrero, Diana. Common Training Errors 101: Understanding Applications of the Bridge & Bridging Criteria. *Animal Keepers' Forum*. AAZK. Vol. 24(10) Part Two: Oct 1997.
- Guerrero, Diana. Common Training Errors 101: Confusing Consistency With Predictability. *Animal Keepers' Forum*. AAZK. Vol. 24(03) March 1997.

(About the Author: Since 1978, ARKANIMALS.COM Director, Diana Guerrero has worked professionally in a variety of animal facilities. Attending and completing courses in both animal management and training from institutions both here in the United States and Europe, she has been affiliated with some of the best organizations. She is an alumni of The Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Animal Affection Training School, The International Training Centre at the Jersey Wildlife Preservation Trust, and special program extensions with Marwell Zoological Park and Kent University. Guerrero started her career in the marine mammal field working as a naturalist, and subsequently became involved with terrestrial animals in zoos and other facilities. Guerrero writes a variety of animal-related columns, including the popular series, Unusual Animal Careers and does seminars nationally. Watch for two of her book projects in the summers of 1999 and 2000! Questions for ABCs should be submitted to Diana directly via e-mail:> arkabc@arkanimals.com< or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.)



*By Kayla Grams, Como Zoo
and Jan Roletto, Columbus Zoo*

*Submitted by Katya Woloschko and Rebecca Harry, Interns
Potter Park Zoo, Lansing, MI*

As students of Michigan State University we were able to obtain experience as interns in the zoo science field working particularly in environmental enrichment for Potter Park Zoo's animal collection. We designed and implemented a variety of enrichment activities which provided physical, social, mental and sensory stimulation for the zoo's animals.

Wolves: Rawhides and pig ears were buried in various locations within the exhibit which provided the wolves an opportunity to exhibit naturalistic behavior by digging the treats up and burying them again.

A frozen treat was created by freezing pieces of fresh salmon in the salmon's natural juices and water in five-gallon buckets. This provided the wolves a variety in diet as well as a new and playful means to obtain their food.

Pieces of venison carcass were placed inside a burlap bag which was suspended from a tree limb using rope. The wolves were provided with physical exercise when jumping on hind legs and tearing at the bag in attempts to obtain the meat. Play and competition was encouraged when the meat was finally pulled free from the bag and the two wolves claimed pieces for their own.

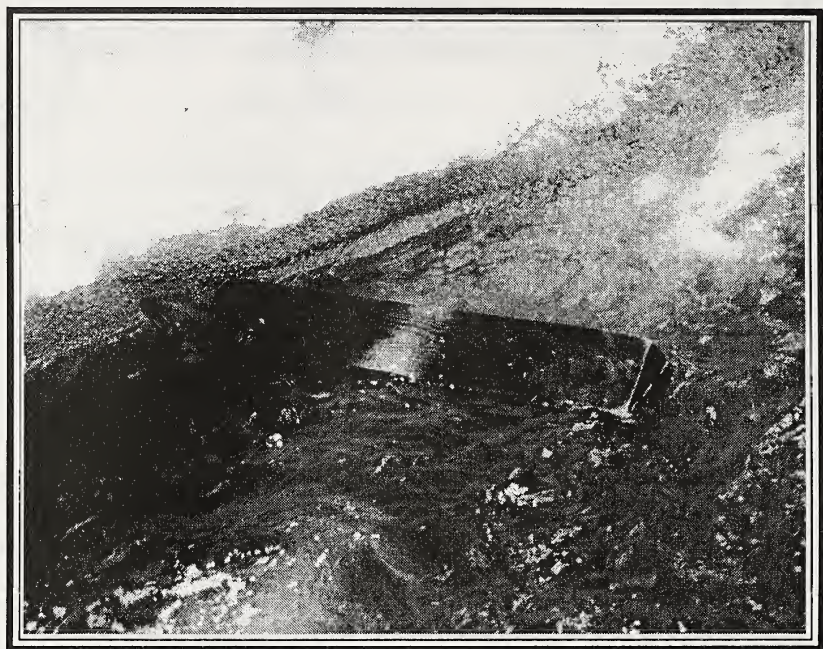
Dog and bison hair were placed and rubbed on different objects throughout the exhibit. This provided for sensory stimulation and natural marking behavior.

Bongos: Dehydrated fruit, and apples were fed by hand to provide for variety in diet and to gain a trusting relationship between keepers and Bongo. Once this was achieved, frequent grooming was provided as a simple form of enrichment between man and animal.

Rocky Mountain Big Horn Sheep: Aspen and Poplar browse was placed throughout the exhibit to mock fauna naturally seen in the sheep's native environment. The browse was erected to resemble natural standing trees forcing the sheep to stretch and jump to obtain the leaves.

Primates: (Mandrills) To increase time spent obtaining food as these animals would in the wild, cooked pasta, frozen fruit treats and dehydrated fruit were scattered throughout the exhibit. Crab-apple and grapevine browse were also provided. To encourage the Mandrills to venture in the outdoor section of their exhibit, a sticky foraging mixture was smeared on exhibit furniture. The mixture was made using peanut butter, cereal, honey and raisins. Strategic placement of the mixture included various heights and textures. The Mandrills were forced to bend, climb, reach and manipulate objects to obtain the sticky mixture.

Otters: Large salmon ice pops were thrown into the exhibit pool forcing the two otters to compete over the treats. The otters also had to manipulate the ice cube onto the shore to be able to consume the salmon pieces. This presented a physical challenge due to the slippery nature of the ice.



River Otters (*Lutra casnadjensis*) were only one of many species included in the environmental enrichment program set up by the authors at Potter Park Zoo, Lansing, MI.

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

**Visit the AAZK Enrichment Website - www.enrich.org/aazk or
to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich**

Last Chance To Submit Your Artwork!

****Enrichment Options ART Contest****

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!!

The logo should be **Crisp, black and white, and clear!** Note the size in the *Animal Keepers' Forum*. The logo should be no larger than it. You may include the Enrichment Options title into the picture, or without. Submissions should be black pen and ink for better quality.

Deadline for submissions is April 1, 2000. Be creative. You can send your submissions to the AAZK Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn: Enrichment Options Art Contest

Subject experts needed for update of **Grzimek's Animal Life Encyclopedia**

Grzimek's Animal Life Encyclopedia is an internationally prominent scientific reference compilation, first published in 13 volumes in German in the late 1960s. The Gale Group has acquired rights to revise the English translation of this acclaimed series and is seeking qualified members of the scientific community to serve on the Grzimek's Editorial Board.

The original *Grzimek's Tierleben Enzyklopaedie* was prepared under the editorship of notable zoologist Bernhard Grzimek (1909-1987). Mr. Grzimek had served as director of the Frankfurt Zoo and also directed the documentary film "The Serengeti Must Not Die," which won Germany its first Academy Award.

The Grzimek's set is known for the clarity of its scientific reporting and the comprehensiveness of its coverage. It describes animals found anywhere on the globe, in the following format:

Vol 1: Lower animals

Vol 2: Insects

Vol 3: Mollusks and echinoderms

Vol 4: Fishes

Vol 5: Fishes II/Amphibians

Vol 6: Reptiles

Vols. 7-9: Birds I - III

Vols. 10-13: Mammals I-IV

Detailed, multi-page articles provide descriptions of an animal's life cycle, geographic distribution, food systems, predators, and overall ecology. The set is well-illustrated with high-quality photographs, drawings, maps, charts, and tables.

The Gale Group will be undertaking a complete revision of the series, expanding it to 16 volumes, commissioning new color images, and updating the information while also making the set easier to use.

To accomplish this goal, Gale is seeking academic specialists to contribute articles, subject experts to serve on the Editorial Board, and a luminary in the field of zoology to oversee the publishing program as Editor-in-Chief. To apply for these positions or to nominate a candidate, please send a letter of interest and a resume to: donna.olendorf@galegroup.com Or mail to: Donna Olendorf, Senior Editor, Science Team 2-651, Gale Group, Farmington Hills, MI 48331.



AICAS

ASOCIACION IBERICA DE CUIDADORES DE ANIMALES SALVAJES

AICAS (Asociación Ibérica de Cuidadores de Animales Salvajes)
Iberian Association of Wildlife Keepers

In February 2000, a group of keepers from the Barcelona Zoo (Barcelona, Spain), begin to talk about the possibility to create a keeper association. The first meetings took place in a Bar called Mudanzas, in Barcelona. The need to create AICAS was born due to the fact that in Spain there is not any specific training on animal keeping, that zookeeping is not professionally recognized, and that there was not any known keeper association at that time. Slowly, the idea was shaped and the basis of AICAS was set.

AICAS is addressed to all the keepers and staff of zoos, aquariums, wildlife recuperation and rescue centers, and other institutions involved in any aspects of wildlife management. Additionally, AICAS is also addressed to students and/or other persons with a specific interest in wild animals.

Essentially, AICAS attempt to enclose all the professionals in the Iberian Peninsula (Spain and Portugal), together with the Balearic and the Canary Islands. However, AICAS may also have an important role in Spanish speaking countries, like Latin America, where there are already some people interested in Mexico and Colombia.

The aims of AICAS are:

- Promote the professionalism of zookeepers.
- Encourage information exchange among institutions related to the care and management of wild animals in captivity.
- Improve education both at a professional and at a social level.
- Collaborate in the preservation of the biodiversity and the environment.

In order to achieve these aims, AICAS is creating a Newsletter that will be published 3 times a year. Our first issue is about to be sent out. Activities like training courses for professionals, and other educative activities at all levels will be performed. The creation of a reference database and a job list are just some other activities that our Association is planning to carry out in the near future.

The executive committee of AICAS is composed of a President (Pep Xarles), a Vice-President (Albert López), a Treasurer (Luis A. Alcoceba), a Secretary (Helena Marqués), and four other members who carry on different activities.

For more information you can visit our web at http://www.geocities.com/aicas_es, although a new web is currently being created. You can also contact us at: AICAS, Parque Zoológico de Barcelona, Parque de la Ciudadela s/n, 08003 Barcelona, España. Or via e-mail at aicas@egroup.com or aicas@hotmail.com

--Helena Marques, AICAS Secretary

(Editor's Note: This is the second in a series of profiles of Zoo Keeper organizations around the world. The first, on the Australasian Society of Zoo Keeping (ASZK) appeared in the January 2001 issue of *AKF*, pp. 26-27). Thanks to ICO Chair Jeannette Beranager for coordinating this series.)

AAZK Announces New Members

New Professional Members

Jamie Segel, **New England Zoo (MA)**; J.T. Warner, **Beardsley Zoological Garden (CT)**; Christopher R. Torge and Rebecca Notcher, **Rosamond Gifford Zoo at Burnet Park (NY)**; Charity L. McKeen, **Claws 'n' Paws Wild Animal Park (PA)**; Elizabeth Karkowski, **The Philadelphia Zoo (PA)**; Meghan Shingler, **Elmwood Park Zoo (PA)**; Meredith Whitney, **Eric Jeltres and Kimberly Lenhardt, The Baltimore Zoo (MD)**; Marty Dearie, **Salisbury Zoo (MD)**; Shannon Wyatt, **Marymount Foundation (VA)**; Julia Patterson and Tony Dills, **WNC Nature Center (NC)**; Jason Giovannone, **Riverbanks Zoo & Garden (SC)**; Rion Taylor, **Wildlife Conservation (GA)**; Pamela M. Poppell and Lance E. Brown, **The Lube Foundation (FL)**; Charles Platt, **Santa Fe Community college Teaching Zoo (FL)**; Melissa A. Cain, **Sarasota Jungle (FL)**; Laura Johnston, **Birmingham Zoo (AL)**; Claire Akin and Marrion A. Linn, **Jackson Zoological Park (MS)**; Staci Goforth, **Mesker Park Zoo (IN)**; Christine DeCapite, **Sea World of Ohio (OH)**; Amanda Mazur, **Indianapolis Zoo (IN)**; Kim Van Spronsen, Kelly Wilson, Elizabeth Davis, Mary K. Mutty and Louise Allen, **Detroit Zoo (MI)**; Dave Burgess and Randy Johnson, **Phillips Park Zoo (IL)**; Carrie Weitz, **Lincoln Park Zoo (IL)**; Benjamin Whitebread, **Niabi Zoo (IL)**; Jon Timmermans, **Omaha's Henry Doorly Zoo (NE)**; Charles W. Sims and Mike Connolly, **Tulsa Zoo & Living Museum (OK)**; Heather Leeson, **Moody Gardens (TX)**; David Johnson and Chelle Pfeiffer, **Denver Zoo (CO)**; Maria Yanessa, **Reid Park Zoo (AZ)**; Amber M. Saunders, **Rio Grande Zoo (NM)**; Janice M. Owlett, **San Diego Zoo (CA)**; Joann S. Hart, **San Diego Wild Animal Park (CA)**; Jennifer

Gonsman, **Santa Ana Zoo (CA)**; Danielle Rangel and Corinne E. MacDonald, **San Francisco Zoo (CA)**; John Pappas, **Honolulu Zoo (HI)**; and Eric Kowalczyk, **Woodland Park Zoo (WA)**.

Renewing Institutional Members

Roger Williams Park Zoo, Providence, RI
Bruce C. Clark, Director

Lion Country Safari, Inc., Loxahatchee, FL

New Contributing Members

Raymond Saumure
Shark Reef at Mandalay Bay
Las Vegas, NV

Renewing Contributing Members

Susan Moy-La Veau
Lincoln Park Zoo

MOVING?

Please let us know when you change your address! It costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!

Ground Transportation Tips

*By Bruce Rendall
Highwater Farms Animal Transport
Kipling, NC*

Now that most airlines will not ship great apes and other large mammals, making ground transportation the most viable option, I wanted to write this article for keepers and caregivers who can make the difference in a safe transfer. I have never been thrilled about air transportation for most any animal, especially large carnivores and great apes. Being in the exotic animal ground transportation business, and having had to air ship animals, I see first hand the difference in the handling of the animals and most importantly the stress on them. I feel the only real plus in air transportation is speed. We've all heard the horror stories surrounding the transportation of animals by air, and I wonder sometimes if the time and little money saved are really worth it.

Whether your institution will move the animal themselves or hire a professional transporter, the day you hear that one of the animals in your care is going to be moved is the day you should start planning. It's never too early to get the animal familiar with the environment that it will be in while in transit. Space permitting, the shipping crate should be placed so the animal can become acquainted with it and, when possible, attached to an off-exhibit enclosure where it can freely come and go into the crate. Most animals will take to the crate as a sleeping space or safe area within a short period of time. It can also help by placing special treats or favorite play things inside the crate every day. This type of crate training might also negate the need for a knockdown on shipping day, avoiding possible re-narc on the trip.

When choosing crate size, you want your animal to be comfortable with enough room to turn around, lie down, etc., but not too much room. Common sense will tell you from working with some animals, especially the apes, that if they can get a grip on something and discover it will move, they will move it and in some cases cause serious injury to themselves in the process. Ventilation is another consideration. Make sure your crate has plenty of ventilation. Any animal will put off a lot of body heat and there has to be adequate ventilation to dissipate this heat in a confined area and allow fresh air in.

The trip route should be carefully planned when transporting animals, especially the more sensitive animals. Whether the trip is a few hours or a couple of days, a list of all institutions along the route should be given to the driver. The staff from the shipping institution should contact their peers along the route, getting emergency phone numbers and names of qualified people in case there is a problem while in transit.

The vehicle should have a separate source of heat and air and not run off the vehicle's engine in case of a break down. If transporting in a cargo van, there should be a solid separation between the driver and the cargo. This is especially true concerning primates. If they get frustrated while riding, the driver could make a fine target for objects thrown from the crate, if you know what I mean.

Another top concern is to do everything in your power to avoid the general public. Do not drive a vehicle marked "Zoo", do not wear zoo uniforms, hats, etc. That is an invitation for people to approach the vehicle or driver with questions or wanting to see the animal. Also, take enough of everything that will be needed for the trip. When I have a trip of 24 hours, I'll take enough diet, water, treats, etc. for three days. It is no fun being delayed or broken down in the middle of Nebraska looking for the food the animal requires.

Now we come to the most important thing for a successful move: a keeper or caregiver who is familiar

with the animal and with whom the animal is both familiar and comfortable. This will not apply to all animals, but is very important with the great apes. Apes usually have their favorite caregiver and that is the person who needs to travel with the driver if at all possible. Having a familiar person along can cut the stress of the move immeasurably and can also help the animal to settle into their new surroundings more quickly.

I'm sure I've forgotten some things. Just remember Murphy's Law when planning your animal move. And please feel free to contact me if I can answer any questions you may have before you move an animal. Happy trails!

The author may be reached at Tel.(919) 639-6458; Fax (919) 639-3566; e-mail:br.hwf@att.net

WILDLIFE CAPTURE COURSE, SUMMER 2001, SOUTH AFRICA

General Information

This field-orientated course provides material and instruction specific to the needs of wildlife capture in Southern Africa and is geared toward zoo keepers interested in free-ranging wildlife conservation and management.

The course emphasizes professional and humane animal handling, and covers practical techniques to maximize field success and human and animal safety. Examples of course topics include: chemical and mechanical game capture techniques, drug delivery systems, current immobilization drugs, and basic veterinary procedures. The course includes wildlife captures in free-ranging situations, a training manual, and a Certificate of Training.

The 9-day course fee is \$1500. The costs cover all activities (also accommodation and food) while on the course. A \$300 deposit is required to insure a spot. Fee does not cover airfare or personal expenses. Currently there are openings in the June, July, August, and September sessions.

Course instructor will be Andre Pienaar of Parawild Safaris. Thys Maritz of Fauna Capture Game Services, Dr. Peter Rogers, veterinarian for the Hoedspruit Research and Breeding Centre for Endangered Species (www.cheetahresearch.co.za), and other wildlife specialists.

To receive an application, email Andre Pienaar at safari@parawild.co.za

CONTACT INFORMATION:

Parawild Safaris
PO Box 4101
Nelspruit 1200
Mpumalanga
South Africa

Phone number from outside of South Africa: 27-82-46
From within South Africa: (082) 468-7001

Email: Safari@parawild.co.za
URL: www.parawild.co.za





REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr.
Gainesville, TX

Question

Have any major changes occurred in crisis management?

Comments

There have been numerous changes over the past decade since crisis management first became recognized as an area of research and study. Probably the most noteworthy change has been how crises are categorized based on their associated characteristics. Interestingly, I was already taking a retrospective look back at zoological safety and was amazed at how it has evolved to encompass so many new areas in comparison to the early concept of "crisis" as interpreted strictly as animal escapes.

As of this writing there are now four recognizable classes of crisis management incidents:

1. Zoological Disasters
2. Natural Disasters
3. Man-Made Disasters
4. Interactive Disasters

Zoological Disasters - Events classified by the presence of biological factors.

1. Outbreak - Essentially the classical model would include any readily transferable contagion, bacteria, or virus. Examples would include ebola, hanta, or salmonella. Zoonotic diseases would be an area of special concern due to the potential threat of geometric growth from exposure from the collection.
2. Feral Animals - Intrusions by native predators foraging or hunting among the animal collection would be the best example.
3. Domestic Animals - The presence of a pack or herd of domestic animals in or near a zoological facility exhibiting disruptive or predatory behavior.
4. Venomous Snake Bite - A situation in which a venomous member of the animal collection has bitten a staff member.
5. Human-Animal Interaction - A situation in which animal contact has occurred, but not an escape. Example: An attack on a member of the public at the primary containment fence, when contact has occurred due to public curiosity.
6. Animal Escapes - A situation in which animals are out of their designated primary containment or holding area.
 - A. Non-Dangerous - Essentially a species that poses little threat or potential harm to human or animal life.
 - B. Dangerous - A species that poses a clear danger to either human or animal life, usually a predator, mega herbivore, or a particularly aggressive species.

Natural Disasters - Events classified as an act of God or nature.

1. Drought or Flood - An event that could be classified by the lack of or overabundance of water, usually in the form of precipitation.
2. Fire and Wildfire - The presence of fire within a facility or the proximity of an uncontrolled fire to a zoological facility.
3. Severe Weather - Meteorological events, which have the potential to damage or suspend operations at a zoological facility. Examples would include hail, ice, wind, and dust storms.
4. Tornado and Hurricane - Meteorological events that could be characterized by the presence of severe cyclonic winds and associated precipitation.
5. Earthquake or Volcanic - Seismic events that can disrupt vital services and are often associated with extensive structural damage.
6. Avalanche and Landslide - Events characterized by the displacement of large volumes of earth or snow.

Man-Made Disasters - Events classified by failure of man-made structures or services.

1. Power Outage or Line Break - Failure of electrical services.
2. Water Outage or Line Break - Failure of water services.
3. Natural Gas Outage or Line Break - Failure of gas services.
4. Communication Outage or Line Break - Failure of telecommunication services.
5. Hazardous Materials Spill - The containment failure of a toxic substance designated within OSHA guidelines.
6. Primary Containment Failure - The structural or mechanical failure of a primary barrier designated for holding zoological specimens in a captive situation.

Interactive Disasters - Events classified by the actions or interference of human beings.

1. Medical Emergency - The occurrence of a life-threatening medical event. Not to be confused with a first-aid situation.
2. Dangerous Person - The presence of a criminal, unstable, or violent person within a zoological facility.
3. Animal Activist - The presence of a person actively involved in disrupting facility operations in a non-peaceful manner.
4. Riot - A large group of individuals directly involved in a destructive or disorderly gathering in or near the facility.
5. Bomb Threat - The communication of the possible existence of an explosive device in direct proximity to a zoological facility.
6. Terrorist Threat - The presence or threat of terrorism in direct proximity to a facility, its staff, and the public in attendance.

All of the above explanations have been kept intentionally brief due to space constraints and it should be understood that their context of definition can be expanded based on the particular situation. I have little doubt that this list will continue to grow over time.

Next Month: What can our facility do to increase dive safety in our aquatic operations?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF.

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

Resources for Crisis Management in Zoos and Other Animal Care Facilities

Resources for Crisis Management in Zoos and Other Animal Care Facilities - edited by S.D. Chan, W.K. Baker, Jr. and D.L. Guerrero. ©1999 ISBN #1-929672-02-0

This reference work is an anthology of articles by authors from zoo keepers to veterinarians to zoo directors to public relations specialists. The works of 56 authors from these diverse zoological perspectives brings together information and resources for planning a crisis management program for your facility or for augmenting an existing program. The 424-page volume includes a foreword by Sydney J. Butler, Executive Director of the American Zoo and Aquarium Association.

The book's chapters are arranged by the following subject topics: Factors That Influence Crisis Management in a Zoological Setting; Developing An Emergency Preparedness Plan; Emergency Response and Crisis Management Teams; Public Relations and the Crisis Situation; Animal Restraint and Animal Identification Techniques; Dealing with A Crisis Situation (Zoological Crisis, Natural Disasters, and Manmade Disasters); Injury and Death at the Zoo; and Taxon-Specific Crisis Management Protocols. This important work also includes an extensive Appendix and a listing of suppliers and equipment vendors. AAZK has gathered the best of existing articles on crisis management and expanded the text with originally solicited materials on Zoonotic Disease: Risk Appreciation and Biosafety, Meteorological Aspects of Disaster Planning, The Weapons Response to a Zoological Crisis Situation, The Process of Exhibit Design and Construction: How It Affects Crisis Management, etc. The book includes the results of the first-ever North American Crisis Management Survey as well as Case Studies showing how zoos reacted in various crisis situations and what was learned from their experiences. A must for every zoo professional!

To order fill out the form below and return with your payment to: AAZK, Inc., CMR, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 U.S.A. Checks and money orders should be made payable to: "AAZK, Inc." (U.S. FUNDS ONLY). If using a credit card, make sure to complete all requested information on form. Prices are: AAZK Members \$45.00 Non Members \$60.00. Prices include domestic Book Rate Postage. Orders outside the continental U. S. should add \$15.00 for parcel post surface shipping.

Crisis Management Book Order Form

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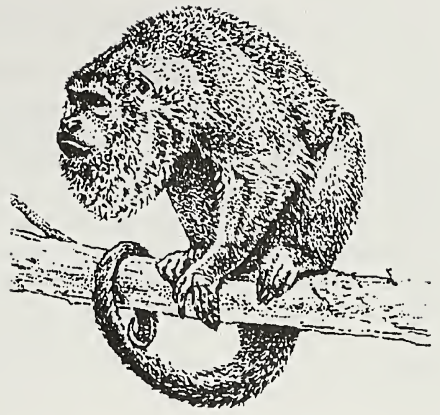
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Howler Monkey Births in the Belize Zoo

By John Foster, Animal Management
The Belize Zoo & Tropical Education Center
Belize City, Belize, Central America



The black howler monkey (*Alouatta pigra*) is one of six species of the genus *Allouatta*. This new world primate ranges from southern Mexico to northern Argentina, with the black howler monkey confined to the Yucatan in Mexico, Guatemala and Belize.

On 6 July 1999 the Belize Zoo had a successful birth of a female black howler monkey. Fifteen months later on 20 October 2000, the mother gave birth to another female. The mother was wild-caught from Isabella Bank in the Belize district. The date of birth of the mother is estimated to be 1994, making her five years old when she first gave birth. The father was also wild-caught, with an estimated birth date of 1990.

With the first offspring the dam was very nervous, refusing during the first eight weeks after the birth to enter the management pen at night. She only came in to eat, and moved out directly when any zoo staff tried to close the entrance shutter. This was very worrisome as it was the start of the rainy season and there were some torrential downpours. To give some shelter and access to food, the entrance to the management pen was left open every evening from 1630hrs until 0800hrs the following morning.

Within four days of the birth, the other female in the troop had started to assist the mother with the grooming of the infant. By the third week in August the young monkey was observed to be moving away from its mother but always staying within arms reach. As the weeks progressed the infant spent more time away from its mother. At 23 weeks old it was seen browsing on oak leaves, the first time it had been observed feeding itself. Weaning took place at ten months old, by the end of May 2000 the young monkey was away from its mother for most of the day.

With the second birth in October 2000, the mother seemed to be much more relaxed, entering the management pen with no stress, allowing zoo staff to come close and inspect the baby at a very short distance. The new arrival was seen being carried by its older sister piggyback style the day after it was born. At the time of writing, (Nov. 2000) the baby is four weeks old and is starting to reach for branches and leaves and is moving freely between the two adult females in the troop.

The Howler monkey exhibit at the Belize Zoo is in two sections, each approximately 7000 square feet, highly vegetated and enclosed with an electric fence. Climate control is not a problem, the monkeys (as with all other Belize Zoo animals) are native to this country. One section has two male Howler monkeys. The other is home to an adult male, two adult females, one juvenile female (one year old), and one four week old female. Feeding consists of suitable browse, provided by the Zoo staff in the morning. The evening feed consists of papaya, banana, citrus, high protein dog chow, boiled eggs, carrots and lettuce and is provided in the management pen. When the monkeys enter to feed, the shutters are closed keeping them locked up safely for the night. Fresh water is available in the exhibit and in the management pen at all times.

AAZK Enrichment Notebook

Second Edition Revised

The AAZK Enrichment Notebook, 2nd Edition, was designed to be user friendly and to provide the kind of information needed to build a comprehensive enrichment program. The AAZK Enrichment Notebook, 2nd Edition, is a tabbed, 3-inch binder with 213 pages (many of them duplexed) of enrichment information (plus an index) which includes an overview of enrichment, a resources and suppliers list, links to enrichment information, sample enrichment forms in use at various institutions, guidelines for enriching various taxa (reptiles, birds, primates, carnivores, ungulates and bats), risk assessment and safety issues, a browse plant list, a toxic plant list, cookbook recipes, an enrichment idea catalog that includes all entries from the original AAZK Enrichment Notebook plus new submissions, and institutional contacts.

The AAZK Enrichment Committee will be working on a bibliography and a tab has been provided for this future project. A Table of Contents and Index make it easier to access the information. You may purchase the entire binder or just the notebook "guts" to update a previously purchased AAZK Enrichment Notebook. The AAZK Enrichment Notebook was designed to be a "living document" with ample space for future AAZK Enrichment Committee projects and/or other information gathered by you or your institution.

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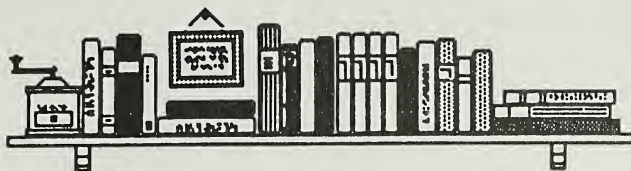
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Book Review

A Guide to Snakes

By Michael Waters, Peernel Zwart, and Fredric Frye – 2000

The Royal Veterinary College

Hawkshead Lane, North Mymms

Hatfield, Herts AL9 7TA

and Krieger Publishing Company

PO Box 9542, Melbourne, FL 32902

CD-ROM Price\$55.00

Review By Sandra C. Wilson, DVM, MS

Veterinarian, Sedgwick County Zoo, Wichita, KS

A Guide to Snakes is the second in a series of programs on CD-ROM developed by the Royal Veterinary College, designed to introduce the veterinary practitioner to the basics of reptile medicine. The contents are divided into four sections. Each section includes numerous photos, drawings, and several video clips, some with sound, to illustrate the material.

The Basics section covers biology and husbandry. Fairly specific information is provided on most of the species commonly encountered, including differences in food preferences, caging, and optimal temperatures. Venomous reptiles are also covered.

The next section covers procedures such as venipuncture, gastric lavage, ultrasound, endoscopy, anesthesia and surgery. The emphasis of this section is on obtaining a complete history and performing a thorough examination. Clinical pathology is covered briefly.

Many of the diseases commonly encountered in private practice are discussed in the third section. Stomatitis, respiratory infections, cryptosporidiosis, and dystocia are a few of the disorders described. Information on diagnosis, treatment, and prevention is provided.

The Resources section contains various forms useful to the practitioner, an introduction to multimedia learning, and links to related internet websites. The References section lists a modest but useful number of textbooks and journal articles.

The self-tests are particularly helpful, allowing the student an opportunity to identify and concentrate on weak areas. "Hotwords" appear in blue, and when clicked with the mouse, provide a pop-up window with additional information on various terms used throughout the text. Detailed information on diagnostic procedures, including more radiographic images, and perhaps video demonstrating ultrasonographic examinations would make this multimedia presentation even more useful. In summary, this CDROM would make an excellent addition to a zoo library or private practitioner's collection of reference material.



Conference 2001

Toronto, Ontario, CANADA

September 30th to October 4th, 2001

SECOND CALL FOR PAPERS

Deadline for abstracts: June 1st, 2001
Deadline for papers: July 15th, 2001

Make sure to take into consideration extra time for mail to reach Canada from the U.S.

Our theme this year, "*amoebas to zebras...a species odyssey*" is about diversity. We are looking for a range of presentations representing not only mammals but also birds, reptiles, amphibians, fish and invertebrates. We also need topics relating to husbandry techniques, training, enrichment, exhibit design, education, zoo related in-situ conservation, captive breeding and reintroduction, etc.

Abstracts must include the following information:

- Name of presenter and co-authors
- Zoo or aquarium affiliation
- Position or title
- Title of paper, poster or workshop
- Short bio on yourself (for introduction)
- **Abstracts MUST have a physical mailing address included - abstracts will be denied if they do not have an address. Please also include e-mail address, if available.**

Please limit abstracts to one or two paragraphs. Abstracts must include in detail the significance of the topic to be presented along with the results, conclusions, or benefits of the work described. Poorly written abstracts or those not containing the proper submission information will be returned.

Submit one copy of abstract to:

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Southern Ontario AAZK Chapter
Toronto Zoo
361A Old Finch Avenue
Scarborough, ON Canada
M1B 5K7
E-mail: ecole@zoo.metrotor.on.ca
Fax: (416) 392-4979
Phone: (416) 397-9055

And one copy to:

Jeff Phillips
National Programs Chair
136 Harpersfield Street
Davenport, FL 33837
E-mail:
jeff_phillips@worldnet.att.net
Fax: (407) 938-2666

For more information visit our website at <http://aazktoronto.tripod.com> or contact Lesya Pedden at aazk2001@zoo.metrotor.on.ca.

**2001 AAZK NATIONAL CONFERENCE
TORONTO, ONTARIO
SEPTEMBER 30th to OCTOBER 4th**



Toronto Zoo staff and volunteers are looking forward to welcoming zookeepers from across this continent and beyond to the 28th National AAZK Conference. Delegates will visit the zoo on Wednesday October 3rd where they can expect a full day of behind-the-scenes activities and workshops while exploring the 700-acre zoo site. Located in the protected wooded valley of the Rouge River just east of Toronto, highlights to watch out for will include; the brand new Gorilla Rainforest exhibit; the new Africa Savannah trail; the natural splendor of the Canadian Domain, and the zoo-geographic set-up throughout, which is particularly concentrated in the four main tropical pavilions - Africa, IndoMalaya, Americas and Australasia. With over 500 species of animals and 1000 species of plants, our collection is arranged to reflect the diversity and complex nature of ecosystems.

The rest of the time, delegates will be based in the elegant Toronto Colony Hotel in the bustling downtown core of Canada's biggest city. Though it offers the finest in dining, there's a world of alternative eateries in the immediate vicinity. For the Icebreaker, delegates will enjoy a nighttime view of the city from the revolving reception room on the top floor. From there it seems as if the whole city awaits you, as indeed, it does.

...and here's a dispatch from our social committee.

We're bracing ourselves for the biggest invasion of Americans since the war of 1812. We're stocking up on haggis-based jerky and back-bacon donuts. As we speak, beer-laden dogsleds are being driven at an unmerciful pace to Toronto. We're planning fun things for the hospitality suite too, like slipping the Americans "mickeys" so we can clean their clocks at bum-darts, again. Everything's on schedule, there's just a few minor uncertainties at this stage. For example, we're optimistic that the igloos will hold up, for the most part. And although The Queen will probably be there to welcome you all on Monday morning, in the event she can't make it, we're making arrangements for The Prime-Minister to string a few English words together in the way of an opening remark. Bet you can't wait, eh?

Amoebas to Zebras....

A Species Odyssey

2001 AAZK NATIONAL CONFERENCE

TORONTO, ONTARIO

SEPTEMBER 30th to OCTOBER 4th



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Late fee (After Aug. 1, 2001) \$ 25.00 US/ \$ 35.00 Can _____

Daily Rates:

Sun 30 September (Icebreaker) \$20.00 US/\$30.00 Can _____

Mon 1 Oct (papers, buffet breakfast, breaks) \$35.00 US/\$50.00 Can _____

Tues 2 Oct (papers, breaks) \$25.00 US/\$35.00 Can _____

Wed 3 Oct (Zoo Day-lunch) \$35.00 US/\$50.00 Can _____

Thurs 4 Oct (papers, breaks, lunch) \$35.00 US/\$50.00 Can _____

Thurs 4 Oct (Banquet) \$40.00 US/\$60.00 Can _____

TOTAL FEE ENCLOSED \$ _____

Conference Registration Fee **DOES NOT** include cost of Conference Proceedings.

Please make checks or money orders payable to: AAZK 2001

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Card# _____ - _____ - _____ - _____ Expir. Date _____

Send Registration Form and all fees to:

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**2001 AAZK NATIONAL CONFERENCE
TORONTO, ONTARIO
SEPTEMBER 30th to OCTOBER 4th**



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Room Rates

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Taxes are 1) Provincial Hotel
Room Tax is 5%

Special Request _____

Check-in time: 4:00 p.m.

2) Federal Goods &
Service Tax (GST)
is 7%

Check-out time: 12:00 noon

Diner's Club _____ Master Card _____ AmEX _____ Discover _____ Visa _____
Card

Number _____ Expires _____ Signature _____

- Not responsible for roommates.
- Visitors to Canada can apply for a GST rebate upon departure.
- Parking is \$12 per day for self park, this represents a \$5 discount for AAZK delegates.
- Reservations can be made directly with the hotel by calling 1-800-387-8687 or by fax at (416) 585-3157.
- The American room rate was based on exchange rate at the time of printing this form. Rates may fluctuate.

Hotel reservations must be made by August 27, 2001. Reservations made after this date will be made on a space available basis only and at the prevailing non-conference rate. Once you have guaranteed your reservation, cancellations must be made 24 hours prior to the date of your arrival or you will be liable for one nights room rate and tax. This amount will be deducted from your deposit or billed through your credit card.

Mail form to: Toronto Colony Hotel, 89 Chestnut Street, Toronto, Ontario M5G 1R1 Canada



PRE-CONFERENCE TRIP

Haliburton Forest and Wildlife Reserve Wolf Center and Canopy Tour

Friday and Saturday, September 28th and 29th

Experience the Canadian north like few have ever done! The trip consists of an overnight trip just 2 1/2 hours north of Toronto. Visit wolves in their natural environment; walk with wolves in the evening, and the next day to top it all off, a canopy boardwalk some 20 meters (approx. 60 feet) above the forest floor. Delegates will spend the night at the reserves' two lodges. Sign up early as there is limited seating for this unique trip. Costs will follow in future *AKF* issues.

POST-CONFERENCE TRIP

Niagara Falls Excursion

Friday and Saturday, October 5th and 6th

Friday will begin with a wine tour through Southern Ontario's prime vineland and will end in Niagara Falls. In Niagara Falls, delegates are free to explore the natural beauty of the falls, the unique main street of the city or even the casino. Saturday we leave for the African Lion Safari for a tour and lunch before heading back to Toronto. This trip will have limited seating as well, so sign up early. Costs will follow in future *AKF* issue.

Hope to See You All in Toronto !

Observations of Captive Breeding in Yellow-billed Storks (*Mycteria ibis*)

By Jean E. Tinsman, Animal Encounter Trainer
Jacksonville Zoological Gardens, Jacksonville, FL.

Abstract

The yellow-billed stork (*Mycteria ibis*) is a species native to tropical Africa. It is found in abundant quantities in its home range and the population appears to be stable. Propagation in the wild is fairly well documented and appears not to be threatened. While populations of yellow-billed storks in captivity are becoming more common, they are limited to a small amount of institutions. Captive breeding has been successful in several of these institutions including the Jacksonville Zoological Gardens (JZG); however, captive breeding research is limited. From 11 Apr 1998 through 10 Jun 1998 a study in the form of an ethogram was conducted through daily observations of a captive pair of storks as they reared their newly hatched chick at JZG. The observations began two days after the chick hatched and concluded on the day the chick fledged from the nest. The purpose was to establish a database of behavior and environmental conditions for captive pairs and compare this with that known for wild pairs. While the yellow-billed stork is not a species that is threatened or endangered, it has many similarities to other species that are. These include the American wood stork (*Mycteria americana*) and the painted wood stork (*Mycteria leucocephala*) both of whose status in the wild is listed as regionally threatened, as well as the milky stork (*Mycteria cinerea*) whose status is endangered. Established databases of successful captive breeding programs may be useful for future conservation efforts of these threatened and endangered species.

Key Words. — captive breeding; conservation; Jacksonville Zoological Gardens; *Mycteria ibis*; yellow-billed stork.

Introduction

The yellow-billed stork is one of only four stork species in the genus *Mycteria* and it shares many characteristics with the other species. It is native to tropical Africa south of the Sahara to Southern Africa and parts of Madagascar where it is found in abundant quantities and is maintaining a stable population. The habitats of the yellow-billed are quite diverse and include swamps, marshes, rice fields, small pools, and margins of lakes or rivers. (Brown, 1983) They feed in shallow water using tactile location with a bill that is specially adapted to be submersed nearly to the base. A stork may forage singly or in small groups. The diet consists of frogs, small fish, aquatic insects, worms, and crustaceans. They are also known to eat some small mammals and birds. (Burton, 1985)

The yellow-billed is a medium-sized stork that is mostly white except for black tail feathers, flight feathers, and greater primary coverts. It is related to the wood stork and shares the same characteristic of a long and slightly decurved bill. The bill of the adult yellow-billed is yellow and the legs are a pale red. The head is feathered to the hindcrown and the bare skin on the forehead, face and throat is graduated in color from orange to red. During courtship and breeding, the colors of the legs, bill, and head become much brighter and the skin of the head is greatly retracted. The white plumage of the wings becomes suffused with pink and the wing-coverts appear crimson. The chicks are covered with white down feathers that gradually give way to darker flight feathers. Immature birds have grayish brown plumage with a lighter underside and the head has greater feather coverage than that of the adult. The bill is black and gradually changes to yellow starting from the tip. The legs and feet start out a pale gray and change to a pale pink. The sexes are alike; however, the male is slightly larger. (Hancock, 1992)

In the wild, nesting season coincides with the peak or at the end of, the long rains when the food source is most abundant. Nesting is most often colonial and in the company of other waterbird species. Nests are most often constructed in tall trees such as the acacias or baobabs. Nest construction is normally accomplished in about 7-10 days and is done by both parents. It is constructed of sticks and lined with leaves and grasses. New nesting materials are added to the nest throughout the breeding cycle. (Brown, 1983) Broods usually consist of 2-4 eggs. The duties of incubating, brooding, guarding, and feeding are shared by both parents. Incubation takes about 30 days and the chick grows rapidly reaching adult size in approximately 60 days. (Hancock, 1992) The young are hatched in two or more day intervals and are entirely altricial. Feeding is done by regurgitation of the adult onto the floor of the nest and water is dribbled from the bill of the adult into the bill of the chick. In direct sunlight and excessive heat, parents will spread their wings to provide shade for the chick. Parental attention is continuous for approximately 21 days. The young leave the nest after 50-55 days and are soon independent. Although they are adult size at this point, it will take another three years before the juveniles develop adult plumage and are capable of breeding. (Brown, 1983)

Almost all of the captive yellow-billed storks are wild-caught as only three institutions in the nation have had successful captive breeding as of the time of this study in 1998. The Jacksonville Zoological Gardens holds the distinction of being one of these with a clutch of three chicks raised in 1997 and a single chick hatched in 1998, each clutch belonging to different adult pairs. In 1998, JZG had three fully flighted adult storks that were wild-caught in 1994 so their exact ages are unknown. Of the three adults, one is an unpaired female with no leg band and is identified as #0. The other two are each left leg banded with #35 identified as a female and #31 as a male. An egg belonging to the #31 and #35 pair hatched on 09 April 1998. Two eggs were laid; however, only one hatched. A study was designed in the form of an ethogram to monitor the behavior of the pair as they reared their chick. The single female was also included in the study to determine if she shared in any of the responsibilities. As the study progressed, the ethogram was modified to include the activities of the chick as they became observable. The behaviors observed appear to mirror those of birds in the wild. Therefore, establishing a database of captive breeding behavior and environmental conditions may help to facilitate future conservation efforts for breeding threatened and endangered stork species.

Methods

These birds are housed in a 12.2m (40 ft.) tall mesh free flight aviary that is accessible to the public (see Sheet 1 - Aviary). There are more than 20 other species in this aviary. The storks' nest was constructed of sticks and lined with palm fronds and other greenery. It was positioned next to a waterfall on the top of a rock ledge at a height of 2.59m (8.5 ft.). It was facing due east so it received direct sunlight in the morning and midday. Vegetation provided some shade; however, between the hours of 1100 and 1400 the nest was in full sun. A public sidewalk passed directly in front of the nest at a distance of approximately 1.83m (6 ft.). The nest was clearly visible but not accessible to the public. The site for observing the storks was located approximately 7.62m (25 ft.) away from the nest behind a row of bushes and small trees in order to provide a partial blind (Sheet 1).

Before observations began, an ethogram of normal and expected behaviors was set up (see Sheet 2). It was designed to make observations of one-hour intervals twice daily. However, there were three occurrences when observations could not be conducted for the full hour so 1/2 hour intervals were used in both the AM and PM. The AM period extended from 0800 to 1230 and the PM from 1231 to 1700. Observations were conducted for 61 days with 32 AM hours for a total of 640 recordings and 27 PM hours for a total of 540 recordings. Three volunteers conducted 0600 hr and 2000 hr observations while I conducted the remaining ones to keep observational bias to a minimum. On 16 days throughout the study no observations were conducted. During the observation interval, each of the stork's activities was recorded every three minutes for a total of

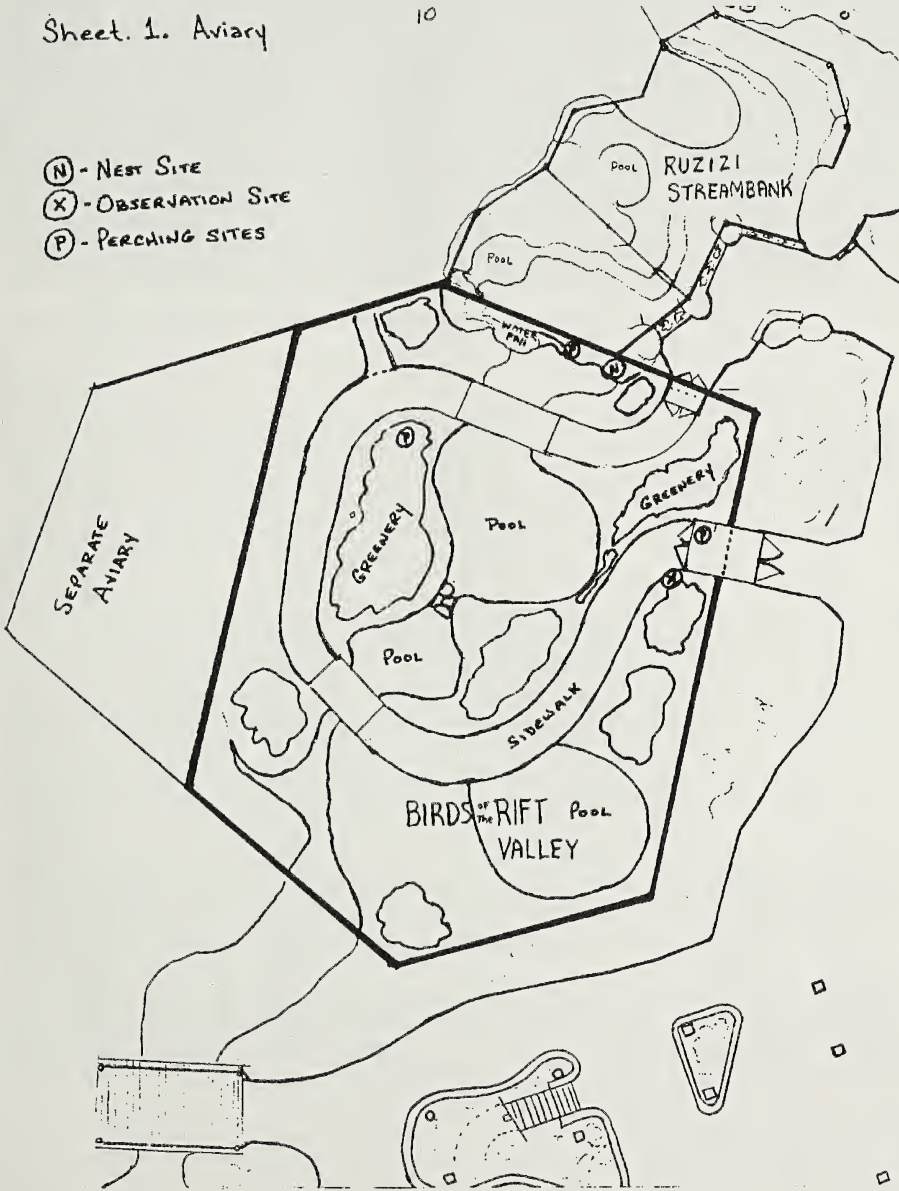
20 observations per hour. If an unexpected or unusual behavior was observed at any time during the hour interval, it was noted on the sheet.

On 11 Apr 1998 daily observations began of the adult pair as they tended to their two-day old chick. Observations recorded for the first 19 days were those of the adults only. However, as the study progressed the ethogram was modified to include activities of the chick. On day 20, the chick became sufficiently visible in the nest to include it in the observations. The study concluded on day 61 when the chick was observed away from the nest. The data was analyzed and graphed using Microsoft Excel® to show the percentage of time that each bird spent engaged in specific activities.

Sheet. 1. Aviary

10

- (N) - NEST SITE
- (X) - OBSERVATION SITE
- (P) - PERCHING SITES



Yellow-Billed Stork (*Mycteria ibis*) Ethogram

Date _____
Observer _____
Weather _____
Temperature _____

[illegible]

* A brief comment is required when this behavior occurs

Comments:

Key to Chart Entries:

Bird Identification:

335 -- Female with #35 yellow band on left leg
0 -- Female with no leg band
331 -- Male with #31 yellow band on left leg

Nest Construction: (Bird ID + behavior)

A – Arranging existing nest

G – Gathering new material

B - Bringing material to nest

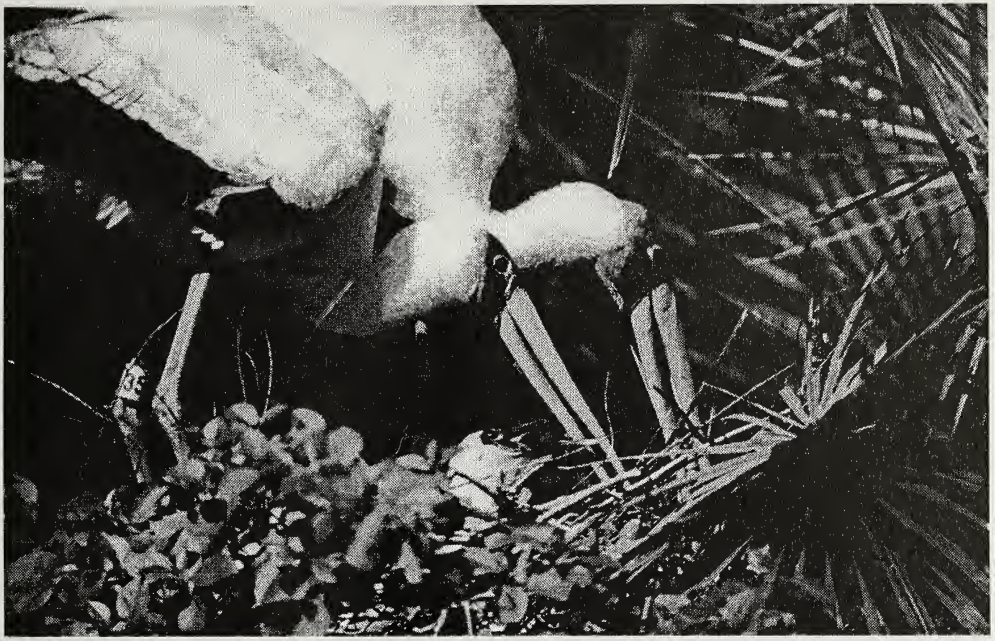
Circle entry if not at primary nest

Allo-Preening:

35/0 - 35 preening 0

31/35 – 31 preening 35

(etc.)



Female (in foreground) and male attending to chick on 25 April 1998. (Photo by Jean Tinsman)

Results

As seen in Figures 1 & 2, the unpaired female (#0) had no role in the rearing of the chick. #0 spent the majority of total observed time perched either on the waterfall rocks or on top of a tree (47%), or over an entrance door (34%). None of these locations are in close proximity to the nest. #0 also was observed to spend the greatest amount of time in flight of the three adults (~3%). In addition, she spent a greater percentage of time preening (17%) than did the other two adults. Individual data for #0 are shown in Figure 3.

The male (#31) was observed spending more time in rearing the chick than the female (#35) (Figures 1 & 2). #31 spent 60% of the AM and 57% of the PM time on the nest, of which 5% in the AM and 9% in the PM were spent brooding. This can be compared to #35 that spent 23% in both the AM and PM on the nest with approximately 2% of this spent brooding. #31 also assumed a greater role in feeding the chick with totals of 10% AM and 7% PM versus 2% AM and 1% PM for #35. In place of spending time with the chick, #35 spent the majority of her time in the AM perched on the waterfall rocks near the nest (47%) and the PM time on the ground (51%). Individual data for #31 & #35 are shown in Figures 4 & 5, respectively.

There were seven recorded instances of the parents exchanging places on the nest. There were also 57 recorded instances when both parents were perched on the nest together. While perched on the nest, #31 spent 7% of his time and #35 spent 3% of her time rearranging the nesting materials. Both parents were observed bringing nesting materials to the nest.

While the nest was in direct sunlight during the heat of the day, this did not present a problem in the early days of the study as the temperatures stayed in the 70's and 80's. However, by mid May the temperatures were exceeding the 90°F mark (32°C) and creating excess heat on the nest. At this time, a new behavior was noted. During the heat of the day, #31 perched on the nest with his back to the sun and spread his wings to provide shade for the chick. #35 was also observed in this behavior but only during two observation intervals. Along with wing spreading, #31 also brought water to the nest and transferred it to the chick's bill. In addition to dribbling water down the chick's bill, #31 was also observed dumping water from his crop on to the back of the chick.



Parent providing shade for chick on 4 May 1998 (wing spreading behavior). *Photo by Jean Tinsman*

Discussion

The observations in this study were consistent with behaviors documented in the wild by both Hancock & Brown. Bill snapping and touching are commonly seen in wild birds and these same behaviors were noted during periods of nest exchanges as well as while both parents were perched on the nest together. Also as seen in the wild, both parents took part in all aspects of brooding & nesting behaviors although the male (#31) assumed the most responsibility during observed times. He was always quick to respond to cries from the chick. He was the only one to bring water and also brought the most food. These behaviors coincide with Hancock's observations that one parent will attend to the chick consistently for approximately 21 days from hatching.

Other behaviors noted by Hancock include the wing spreading for shade. This was a behavior diligently carried out by the male in response to the incessant cries of the chick. The growth of the chick was also consistent with established documentation. In the early days of the study, the chick was barely visible with only its small white head spotted in the nest. By day 20, much of its upper body could be seen clearly above the rim of the nest. On day 25 it was observed wing flapping and by day 47 it was observed lifting off the nest while flapping. By day 51 it was venturing off the nest but staying in the general vicinity. Within three more days, it made its way out on a rock in front of the nest. This required a short hop from the nest ledge to the outcropping rock. Here the chick would perch and practice more wing flapping. On day 61, the chick took the great leap and flew from the rock to the pond on the ground. No longer dependent on its parents, it still continued to squawk for parental attention. While #31 was in the pond, he avoided contact with the chick. After several minutes of squawking, the chick began to probe the water and repeatedly picked up and dropped a twig. During this time, dead fish from the storks' diet were added to the pond. The chick soon discovered one and spent approximately 10 minutes trying to maneuver it to eat. It was not successful this time but it was certainly honing its skills.

While most of the behaviors seen during this study have been documented in the wild, there was one that I have not found to be previously noted. This was a behavior that was carried out by the male that appeared to have a cooling effect on the chick. As the daily temperatures climbed into the 90°'s (F) while the chick was still confined to the nest, it became extremely vocal during the

heat of the day. On day 56, I observed the male filling his crop with water and dousing it on top of the chick. He continued this behavior three more times over a 10-minute period until the chick was thoroughly soaked and its vocalizing ceased. This behavior was noted on only one day during the study; however, and the chick fledged within seven days after the behavior was observed.



Parent stork dribbling water into chick's bill on 5 June 1998 (water to chick behavior).

(Photo by Jean Tinsman)

Overall, this study demonstrates that captive nesting behavior of the yellow-billed stork parallels that observed in the wild even though habitats and environmental factors differ. It also suggests that although this is a colonial breeding species, large colonies are not necessarily essential for successful breeding. The yellow-billed stork has many similarities to the endangered American wood stork including habitat type, as well as nesting and feeding behaviors. (Kahl, 1987) Therefore, it is encouraging that data collected on captive breeding success may be applied in the future to rebuilding the declining populations of other species.

Acknowledgements

I am greatly appreciative to the Jacksonville Zoological Gardens for allowing me to conduct this research and to Forrest Penney and Alan Rost for providing me with information from the zoo. I would like to thank Heather Wynn, Catherine Tenebruso, and Kathy Stewart for their volunteer work in assisting with observations. I also would like to thank Jayne Tardona for spurring me along to get this paper finished.

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Figure 1. Comparison of Activity Among Storks (AM Observations)

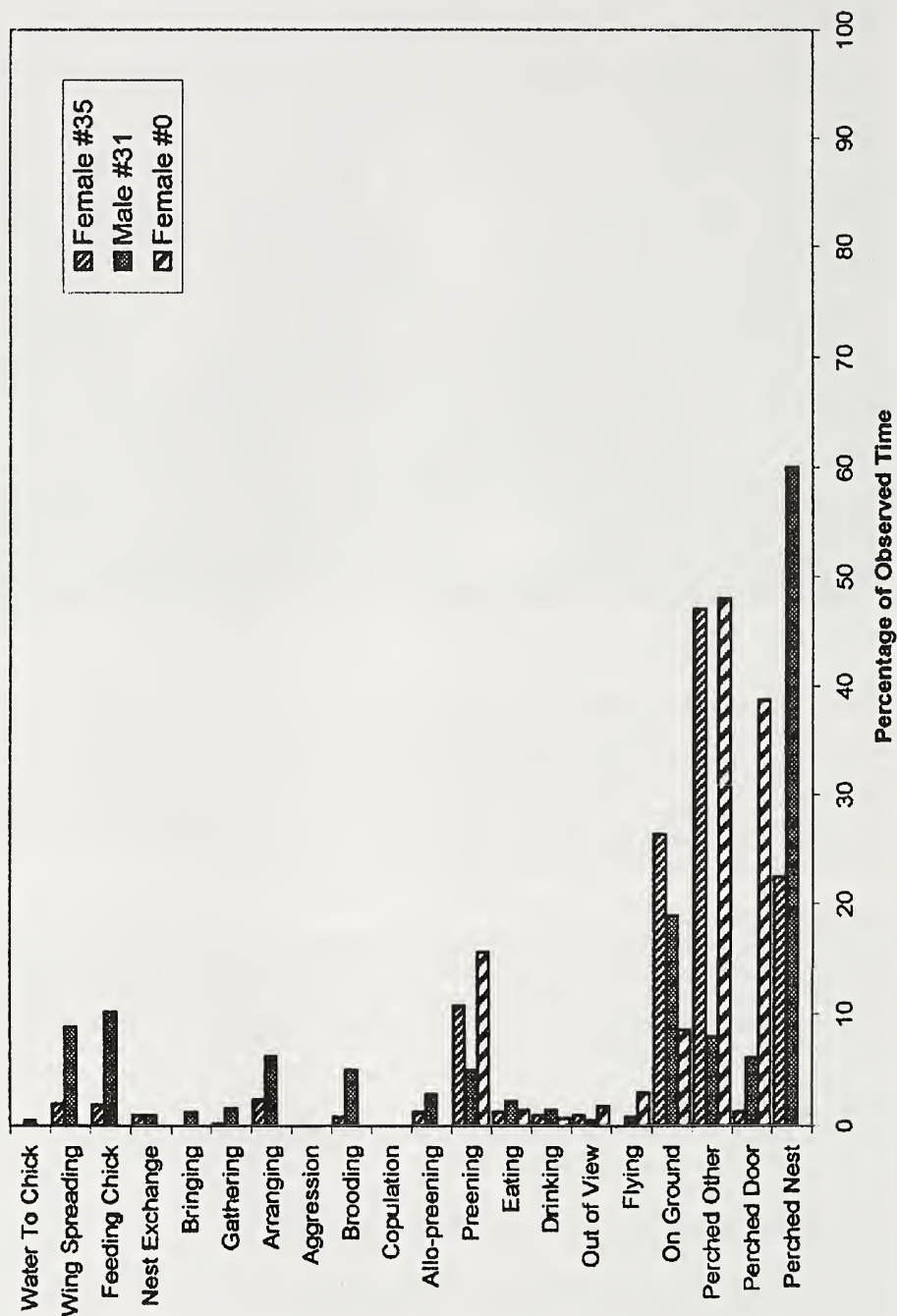


Figure 2. Comparison of Activity Among Storks (PM Observations)

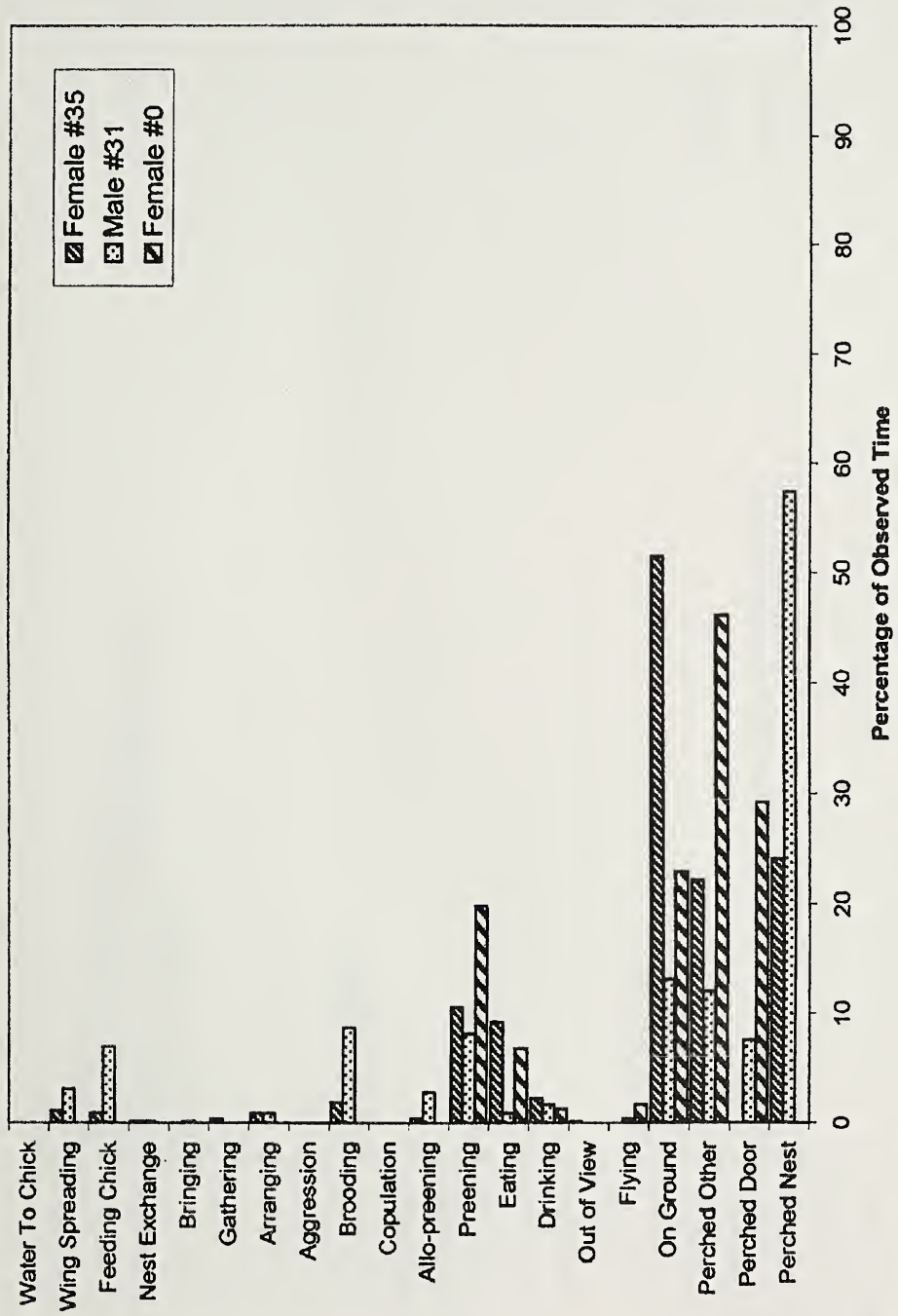


Figure 3. Observations of Female #0.

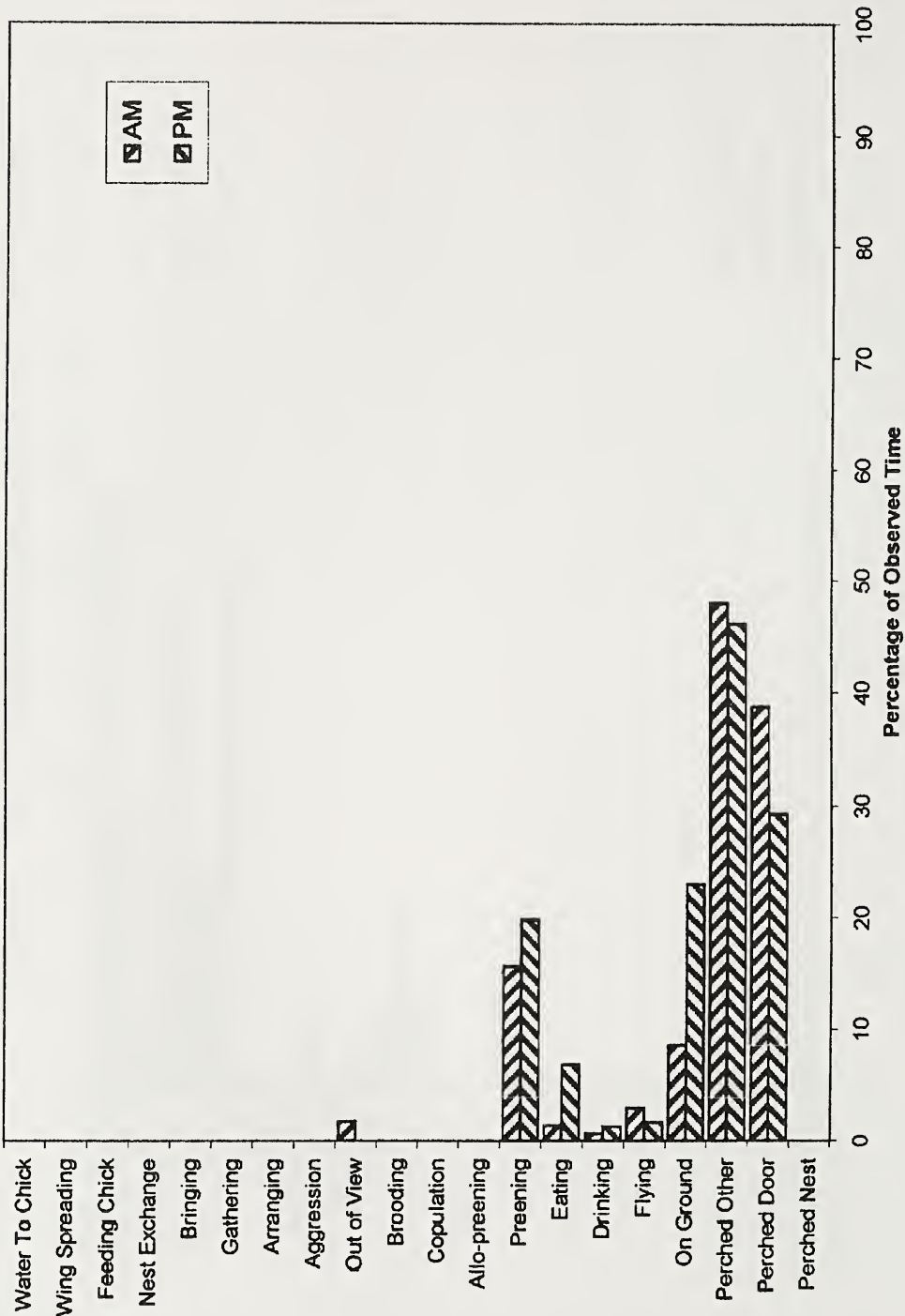


Figure 4. Observations of Male #31

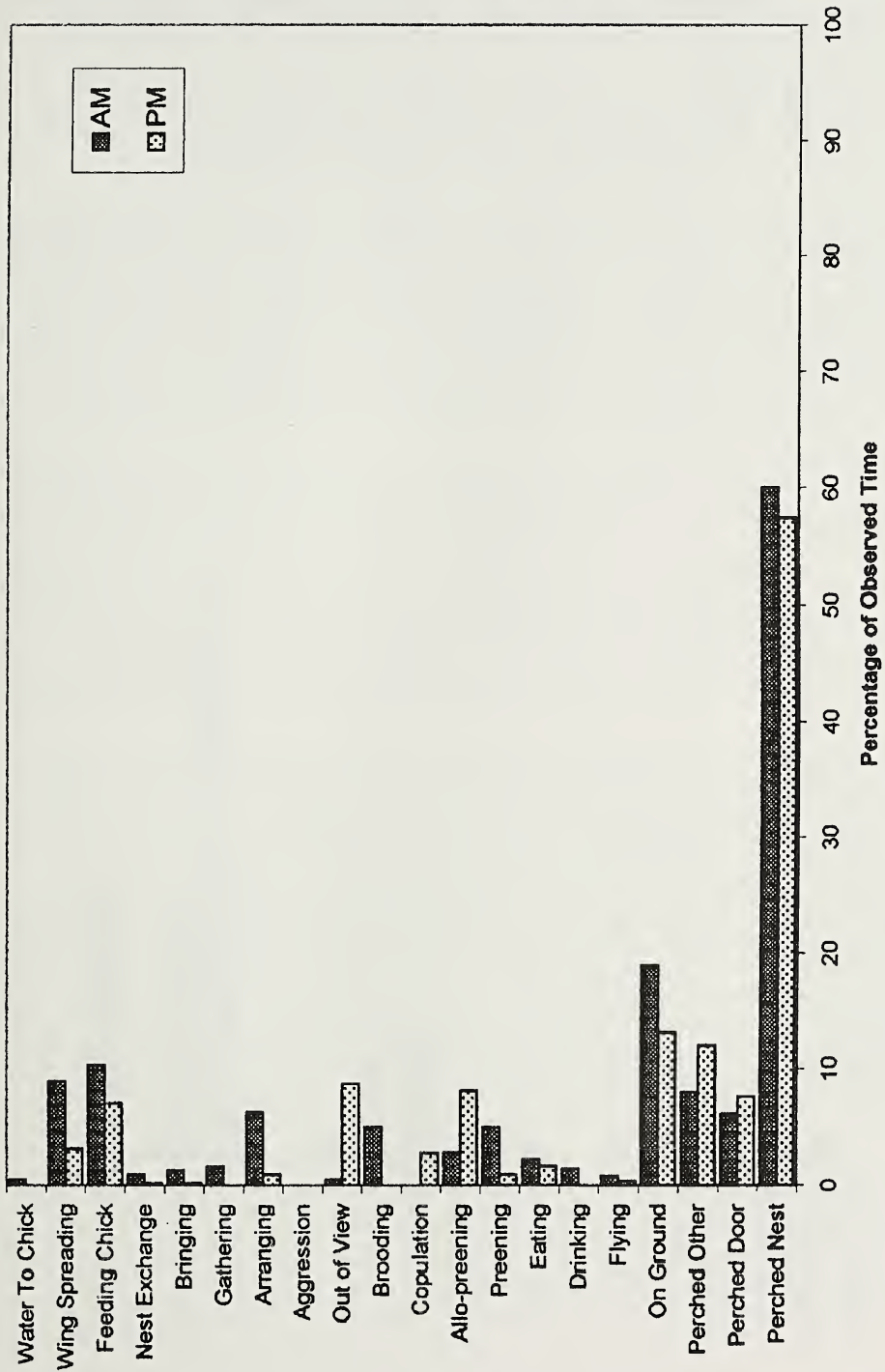
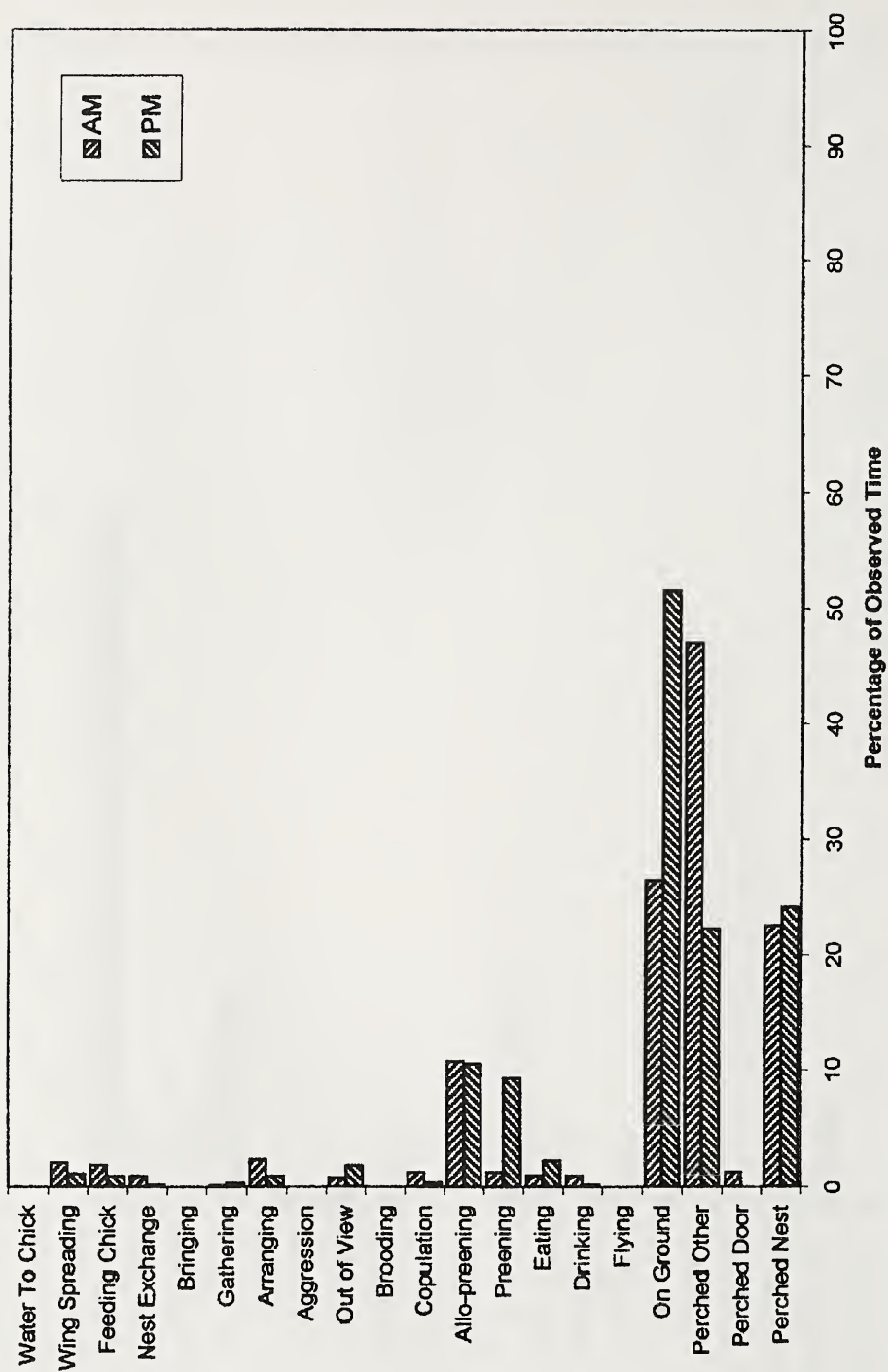


Figure 5. Observations of Female #35



The Water Column

By

Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium

There are a handful of fundamental things to know about the water your organisms are in contact with. Admittedly, it is of particular importance to life forms that essentially spend their entire lives in water such as fishes, but this information can also be of interest and usefulness to people who care for animals that at least spend some time in the water such as tigers (and I will use tigers to refer to all terrestrials that like to swim). For this reason I will attempt to maintain a relatively broad scope of explanation in the following discussions to inform and stimulate thought about what is happening in the water. Some of the footnotes may seem highly technical and that is why they are separated from the main text.

One of the most common things people think about when it comes to water is pH. This can be thought of as the power of Hydrogen. It is usually represented as a number on a scale of 1 to 14 that simply reflects the concentration of hydrogen ions¹. A value below 7 would be considered acidic, a value above 7 would be basic or alkaline, and a value of 7 neutral. Ironically, the lower the number, the greater the concentration of hydrogen ions². Another interesting phenomenon about pH is that it increases or decreases exponentially. A pH of 7 is 10 times more acidic than a pH of 8, a pH of 6 is 100 times more acidic than a pH of 8 and a pH of 5 is 1000 times more acidic than a pH of 8. This is very important to remember when comparing pH values of different bodies of water. One can see how quickly actual H⁺ concentrations can change with a seemingly small change in pH value.

These numbers seem harmless until they are applied to real scenarios. For example, most fish tolerate a relatively wide range of pH values as long as the values don't change too rapidly. Marine fish, which are typically accustomed to pH levels of 8.3-8.5 in the wild, can survive a pH as low as 5.8 if the change occurs slowly, say several days at least. However, try to return the pH level to a more accommodating 8.3 within a fifteen minute acclimation and it will surely lead to disaster. It seems like most fish can handle a rapid (within fifteen minutes) pH change of up to 0.5 units in either direction of the scale but stress such as increased gilling, slight listing, and a general appearance of panic may be associated. While greater changes in pH can be a cause of death, there have been rare cases where the fish showed every indication of expiration (laying sideways, motionless on the bottom with body arched and gills flared) due to such an event only to fully recover within hours. It sometimes happens that circumstances are beyond one's control (especially after animals have spent long hours in small bags) and it may not be possible to avoid a huge change in pH and apparent disaster ensues. While this will probably be the case, give a fish with the above symptoms a few hours to possibly recover if it is practical (e.g. not on display).

Fortunately tigers will not be affected as severely by these amounts of pH change. One may wonder if a tiger even notices a difference from one pH value to the next. However, let's note here that many pool owners try to maintain their pool's pH in a certain range because it just feels better. Skin and especially mucus membranes such as those around eyes may be significantly affected by prolonged exposures to extreme pH. "What about the chlorine burn?" is exactly what many readers will ask themselves as they read this, and that question will be explored later in the series.

Aside from the potential subtle pleasures of a comfortable pH for fish and tigers there are other water quality issues affected by pH such as the nitrogen cycle. The bacteria in the filters make the nitrogen

cycle work. The nitrogen cycle describes how waste products are broken down into progressively less toxic substances. It begins with nasty ammonia, gets converted to nitrites and nitrates and finally atmospheric nitrogen. Exhibits don't function without it so it will be discussed in greater detail later in the series. Anyway these bacteria have an optimum pH range to make their living and if it is too far out of the range it can mean trouble.

The pH of a solution does not exist without various influences. The pH value is essentially the result of one or many acid-base reactions in equilibrium. Contributing acids come mainly from carbon dioxide (CO_2) or organic matter. CO_2 is almost always present at low levels due to atmospheric CO_2 in equilibrium with dissolved CO_2 (equal partial pressures) not to mention CO_2 produced by organisms. Consequently carbonic acid is formed and contributes H^+ . Organic matter usually has acidic compounds associated with its decay that also add to the concentration of H^+ .

So what keeps the pH from getting out of control? The pH is buffered primarily by the dissolved carbonates and to a lesser extent other negatively charged substances such as borates that are normally much less abundant. This is known as carbonate hardness or KH. Most of it usually comes from calcium carbonate and magnesium carbonate but it can come from other less important substances. Water supplies that are derived from natural sources, whether it's seawater or freshwater, will almost always have at least some of these compounds dissolved. The exceptions to this rule may exist in heavily laden organic waters such as some of the South American backwaters and the like. What about the calcium and magnesium? This is what is usually being referred to when people talk about water hardness (sometimes called general hardness). It doesn't really affect pH. The calcium and magnesium make up the general hardness (sometimes referred to as hardness). Other elements such as strontium and other group I elements can contribute to general hardness but are usually much less prevalent. Perhaps one other consideration to take into account is that maybe tigers will have softer coats. When all the water evaporates off a tiger after a swim all the magnesium carbonate, calcium carbonate etc. will remain on the fur until the next time it enters the water or it licks it off.

The last thing I will mention here is salinity. Usually the term "salinity" is reserved for natural seawater and "specific gravity" is used for artificial seawaters. The ramifications of this parameter are fairly obvious, but again, more details will be discussed on this later.

Hopefully the reader has gained some knowledge and thought stimulus without too much confusion. These topics will be reiterated as they relate to other items in the series. In this fashion it is our hope to establish a foundation to grow from in terms of exhibit water knowledge. Until next time, take care and keep those fishes and tigers (when they want to be) wet.

1. The pH scale represents concentration in Molarity (M), which is the number of moles of solute (H^+ in this case) per volume of solution in liters. A mole is 6.022×10^{23} units of a substance. For further details consult the chemistry textbook referenced as well as almost any other chemistry textbook.
2. The pH scale is inversely proportional to a log scale based on 10. For example, if the given pH value is 9.00 then that means the concentration of H^+ is 1.0×10^{-9} M. If the given pH value is 6.00, then the concentration of H^+ is 1.0×10^{-6} M. Recognize that 1.0×10^{-6} (0.000001) is a greater number than 1.0×10^{-9} (0.000000001) and one can see that there are more H^+ at a lower pH value

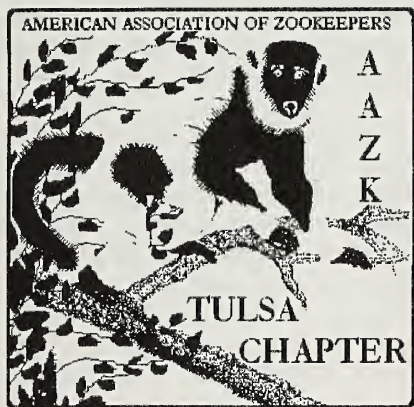
References

Chemistry, Steven S. Zumdahl, Heath and Company, 1986

Each month we will also be answering a few questions from you. We will try to pick questions that are pertinent to that month's topic. We also welcome feedback from the readers. Questions and comments can be submitted to us by email at: Dan: dconklin@flaquarium.org/Kevin: kshelton@flaquarium.org/Bruce: belkins@indyzoo.com/ Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602

Tulsa AAZK Chapter

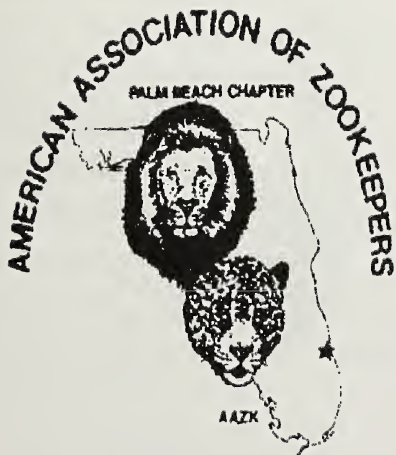
The Tulsa AAZK Chapter had adopted a new logo seen below. It was designed by Ric Kotarsky, current President of the Chapter using Adobe Photoshop 5.0 software. It was created and adopted by the chapter in October 1999. The Chapter created patches from the logo which they wear on their uniforms. They note that visitors often ask about the patch, what it stands for and what is AAZK. A great way to engage the public and spread the word about AAZK!



Palm Beach AAZK

The Palm Beach AAZK Chapter, made up of keepers from the Palm Beach Zoo at Dreher Park and from Lion Country Safari, elected their new officers at their January 2001 meeting. They are:

President.....Michele Dzama
Vice President.....Gwen Gehweiler
Secretary.....Erin Erickson
Treasurer.....Diane Kaye



Chapter News Notes

Birmingham Zoo AAZK Chapter

Our new officers for 2001 are:

President.....Renee Gainer
Vice President.....Cindy Pinger
Treasurer.....Michele Herman
Secretary.....Laura Johnson
Liaison.....Jeremy Konwiser

We are now getting ready for Bowling for Rhinos, hoping to have an even more successful event than last year. Our Keeper Encounters season is also upon us, one of the most popular events at the zoo. In addition, the aluminum can recycling program has raised a considerable amount of money to be used for animal enrichment.



What's Your Chapter Been Up To?
Do you have new officers? A successful fundraiser? A new logo? Be sure and send in your latest Chapter News to share with the AAZK membership. We want to hear about all the great activities and projects you are involved with, including conservation efforts and professional development.

South Florida AAZK Chapter

The past year has been a very successful one for the South Florida AAZK Chapter. We once again held our annual Bowling for Rhinos fundraiser. In 2000, we are proud to say that we raised \$1300.00.

We also held our annual Zoo Keeper banquet. This banquet marked the 20th Anniversary of the South Florida Chapter and also was our most successful banquet. The event was held at the Miami Metrozoo.



We have contributed money to several projects and foundations, including \$100 each towards the expenses for two keepers from Miami Metrozoo to go to Mexico and help with the Flamingo Project. They spent a week in Mexico helping raise and care for flamingos.

We gave \$500.00 towards the Jamaican Iguana Project. We also helped five keepers attend the 2000 AAZK Conference by paying their registration fees.

We would also like to take this opportunity to announce our new officers for 2001. They are:

President.....Kresimir Golenja
Vice President.....Scott Fuller
Treasurer.....Michelle Goosetree
Secretary.....LeAnne Brady
Chapter Liaison.....Ryan Carrigan

We are looking forward to another successful and eventful year in 2001.

Jackson AAZK Chapter

Our growing Chapter has an ambitious agenda. We have a grant program for keepers attending conferences and recipients must present a talk about their conference at an AAZK meeting. Laurie Edwards has spoken on the Bear Conference that she attended and Scott Matthews spoke on the Elephant Conference.

Our Chapter made a donation to the Jackson Zoo Capital Campaign. Funds were raised by selling Glow in the Dark necklaces at special zoo events like the Halloween "Fright Night" and by recycling.

Future plans include more outside speakers. Our February meeting featured Dr. Cathy Shropshire from the Mississippi Museum of Natural Science. She spoke on the Black Bear Recovery program in Mississippi. We are also planning to establish a "sister zoo" relationship with a zoo in Latin America.

Chapter officers for 2001 are:

President.....Charles Pfeiffer
Vice President.....Tom Brown
Secretary.....Percy King
Treasurer.....Jessica Waddell
Docent liaison.....Laurie Edwards
Historian.....Scott Matthews

---submitted by Charles Pfeiffer, President



Lincoln Park Zoo AAZK

The following are officers for 2001:

President.....Susan Moy-La Veau
Vice President.....Marie Perez
Treasurer.....Mike Skidmore
Secretary.....Cindy Swisher
Sgt-a-at-Arms.....Kris Florig
Chapter Liaison.....Nicole Kehl

The following individuals presented at the 2000 National AAZK Conference in Columbus, OH: Roby Elsner - "An Overview of Training at Lincoln Park Zoo's Great Ape House"; and Marie Perez - "Training Two Male Howler Monkeys at Lincoln Park Zoo".

The following Chapter members presented at the Animal Behavior Management Alliance 2000: Marie Perez and Bonnie Jacobs - "Primate Teraining at the Lincoln Park Zoo".

Presenting at the International Conference on Great Apes 2000 were: Ali Lukas and Kristen Lukas - "Behavioral Analysis of a Blackback Gorilla in a Multi-Female Social Group"; Andy Henderson - "History of Collecting, Planning, Husbandry and Exhibit Design for Gorillas at Lincoln Park ZoologicalGardens; and Jenny Crosby and Kristen Lukas - "Maternal Behavior and Group Cohesion Following a Gorilla Introduction".

The following member recently had a paper published in *Animal Keepers' Forum*: Lisa Taylor - "Randon Orgabnization: Organizing the Enrichment Program at the Mammal/Reptile House at Lincoln Park" (Sept. 2000)

--Nicole Kehl, Chapter Liaison

MOVING?

Please let us know when you change your address! It costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!

Utah Chapter AAZK

Greetings from the home of the 2002 Winter Olympic Games. Last year was very busy for the Utah Chapter. We had a record year with fundraising, and as a result we were able to donate \$500.00 to Hawk Watch, \$500.00 to the Southern Rockies Carnivore Restoration Project, \$1000.00 to the Amazon Conservation Team, and \$250.00 to Natioal AAZK for education. Our Chapter also purchased a closed circuit television for the Feline Buliding. The camera will eventually become available for zoo-wide use.

At our last meeting we elected new officers and voted on a new Chapter logo which was designed by Jen Apa (see below).



The officers for 2001 are:

President.....Laura McCord
Vice-President.....Stephanie Natt
Secretary.....Amy Seegmiller
Treasurer.....Julee Barret
Liaison.....Jen Apa

The Utah Chapter is gearing up for Bowling for Rhinos 2001 which is scheduled for June 8th and Cheetah Cha-Cha which will be held on Labor Day.

--Jen Apa, Liaison

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



4x4 Eco-Trail Proposed for Kgalagadi Transfrontier National Park in South Africa

The South African National Parks Agency (SANP) is investigating the possibility of developing a 4x4 motorized vehicle "Eco Trail" in a portion of the Kgalagadi Park – an area which will be known as the Nossob 4x4 (Motorized) Eco-Trail. The proposed trail would be about 200 km (110 miles) in length and can only be undertaken in a 4x4 vehicle. The SANP has stated that the purpose of the trail is "to provide an eco-experience of the Kalahari and is not a 4x4 route for the purpose of putting one's vehicle to the test."

SANP is governed by various environmental laws in South Africa including NEMA (National Environmental Management Act) and the EIA Regulations (Environmental Conservation Act). The proposed 4x4 trail would come into being only after a positive outcome of an "Environmental Assessment" carried out by these and other agencies – similar to an Environmental Impact Report investigation here in the United States. Already the National Department of Environmental Affairs and Tourism (the umbrella agency overseeing South Africa's national parks) has issued a directive that the SANP can run the eco-trail on a "trial" basis for a period of one year as part of the Environmental Assessment. During this period, public participation as well as evaluations by conservation groups and governmental agencies will be conducted and the trail closely monitored.

During the trial run it is intended that the trail will be self-catering, open seven days a week, and limited to a minimum of two vehicles and a maximum of six vehicles per day. The SANP is encouraging trail users to book the use of the trail as a single group – such as a single conservation organization – limited to a maximum of 20 people per day. Four temporary overnight sites have already been put in place which consist of rustic toilet and shower facilities and campfire sites. It is anticipated that a run over the entire trail will take between two and three nights. No trailers/caravans will be permitted and all equipment and provisions (including fuel, firewood and water) must be carried within or on the vehicles.

Since the trail is in the Environmental Assessment phase, those wishing to register as an I&AP (Interested and Affected Party) should contact Dr. Hugo Bzuidenhout, Environmental Coordinator, SNAP Headquarters, telephone 053 8325488 or fax 053 8334543, email hbez@kimnet.co.za. *Source: WildNet Africa Media Release Service 12 December 2000*

Zimbabwe's Land Policy Adversely Affecting Wildlife

In 1980 the country formerly known as Rhodesia was renamed Zimbabwe following multiracial elections establishing a multi-party state with Robert Mugabe as its president (a position he still holds today). More than 11 million people live in this country – a landlocked area smaller than California. Over the years, the government has set aside six million hectares (over 23,000 sq.mi.) for national parks, wildlife settlements and urban settlements (our equivalent of urban parks). Likewise, approximately 33 million hectares (over 127,000 sq.mi.) of the country are suitable for agricultural purposes. According to government officials, 6,000 large-scale farmers control about half the agricultural land with communal area farmers controlling the remaining land – which tends to be low grade and overcrowded.

In February 2000, Mugabe's government lost a referendum on a constitutional amendment that would have allowed seizure of the "communal area" land and redistribution of it among the black majority. Had the amendment passed it would have transferred responsibility for compensating to the formal colonial power, the United Kingdom. Prior to the failed legislation, the UK spent \$70 million (US dollars) on voluntary land redistribution but this ended in 1992. Now, no agency – governmental or

otherwise – is compensating individually owned farms or the government for land/farms that are being taken over by war veterans. In effect, the current problem is primarily one where veterans are coming in and establishing themselves on land that would otherwise be considered to be part of a national park or refuge and then farming the land for their own income. Likewise, individual farmers whose land has become unusable for farm production (primarily through over-harvesting and poor farming techniques) have joined the veterans in taking over publicly owned lands as alternative farm land to support their families. Mugabe's failure to condemn the war veterans' actions led to foreign sanctions against Zimbabwe and the president's critics say the land reclamation issue is meant to deflect attention from the country's economic crisis.

Last summer, the situation was investigated by the Environmental News Service in conjunction with a professor of mammal research and conservation at the University of Pretoria, South Africa. The ENS reported that Professor Johan du Toit warned that the land reclamation policy of Zimbabwe would have dire consequences for a host of animal and plant species. He found that the removal of the indigenous savanna woodland that grows on commercial farmland would ultimately affect threatened species such as black rhinos, African wild dogs, sable, roan antelope and cheetahs. "The black people in Zimbabwe who are demanding land are people who either don't have access to land already, who wish to move from land that has become degraded, or who have lost land to confiscation by military veterans."

"These are very poor people. When they move on to new land they will need to feed themselves as quickly as possible, establish dwellings, and demonstrate some form of tenure over the land. This will inevitably involve deforestation, hand tillage of fields and vegetable gardens as close as possible to water, hunting or snaring of wildlife, and the introduction of goats and cattle." While the Zimbabwe citizens cannot be blamed for their economic predicaments they are refusing to work with any government agency or outside conservation group to address the land issues and reach a balance between farming interests and wildlife conservation.

As an example, a safari camp located at Chipizi Game Ranch has been taken over by veterans who refuse to move. "Presently, the camp is overrun and since February 2000 this "national park" has lost 16 giraffe to poachers through snaring along with other species such as zebra, warthogs, cheetahs and wildebeests. There are also many incidences of poaching involving other species such as eland, impala, kudu, warthogs, and sable and roan antelopes. "Wherever these occupations have occurred, the wildlife has been eliminated," says DuToit. Without an organized plan to prevent those bent upon destroying wildlife from doing so the number of animals killed for food and to prevent grazing of planted areas will continue to grow. *Source: Environmental News Service Online 1 February 2001*

Zimbabwe Demands Legalization of Ivory Sales

The government of Zimbabwe has renewed its demand for legal ivory sales following what governmental authorities say is a swelling of the country's elephant population. After a single permit was issued under CITES in 1999, further legal sales have been prohibited. The Department of National Parks and Wildlife Management's (DNPWM) director, E.W. Kanhanga, states that the country's wildlife sanctuaries can no longer hold the elephants which have increasingly become a real danger not only to humans but also to the environment and other wild animals. "We have reached a point where we are saying we do not know what to do with the elephant population here. To say that we have too many elephants would be an understatement," says Kanhanga.

This position is supported by evidence gathered by ecologists and environmentalists in that country. Environmental degradation caused by elephants was evident during a recent tour of the country's national parks located in the Zambezi Valley. Zimbabwe says that it has 84,000 elephants, almost three times Kenya's elephant population of 30,000. The 84,000 figure was based on a survey conducted by the DNPWM and the World Wildlife Fund (WWF). Experts say that the country's annual elephant growth rate is five percent – about 4,200 elephants are born each year.

The elephant range in Zimbabwe is estimated at approximately 78,550 square kilometers (30,328 square miles). Of this area, a little more than half is within public lands set aside for parks and wildlife. Inside the parks the elephants are totally protected except for management

activities designed to maintain biological diversity. Outside the public lands elephants compete with humans for land, water, food and other resources.

Well-known elephant conservationist Iain Douglas-Hamilton, founder of the organization Save the Elephants, confirms that the population estimate reached by the DNPWM and WWF are correct and may actually be a bit low. However, Douglas-Hamilton states that a legalized ivory trade must be opposed on the basis that “corruption has always surrounded the ivory trade” and that permitting legal trade in ivory “will signal to the world that the African elephant is no longer endangered”.

Officials from the DNPWM counter this argument by pointing that the ever-increasing elephant populations has virtually destroyed the habitat in many of Zimbabwe’s national parks and that this destruction puts other species – such as the black rhino – under threat. Moreover, as the elephant population swells, authorities say that there is a matched accumulation of ivory from both within and without Zimbabwe’s national parks. The government estimates the accumulation to be about 10 tons per year with about 50 percent coming from natural deaths and the remainder from animal problem control measures. Zimbabwe’s current stock stands at 24,000 kilograms (about 55,000 pounds) and costs the country about \$35,000 (US dollars) to manage annually.

Kanhanga, the DNPWM Director, has stated that “Wildlife is a renewal resource. If utilized properly and in a sustainable manner, it will go a long way towards improving our peoples’ life as a country and a continent. We want to make use of this resource that we have in abundance. The fact that our elephant population is increasing means that we have put in place proper and working protection systems. We believe this is something good ... a plus, which those opposed to our call should reward us for.”

The situation in Zimbabwe is complicated by the fact that other African countries also want to sell ivory – whether it is stockpiled tusks or newly harvested tusks. In 1999 CITES allowed South Africa, Botswana, Namibia and Zimbabwe to sell specified amounts of stockpiled ivory – all of which was immediately bought up by primarily Japanese dealers. Now, CITES has rejected requests for further sales saying, in part, that sales will both encourage the return of poaching and that it is impossible to differentiate stockpiled old ivory from newly harvested tusks taken from now living elephants. Zimbabwe is now seeking other African countries – starting with Kenya – to join in supporting their position for purposes of raising sale permit resolutions at the next CITES meeting in 2002.

Source: Environmental News Service Online 17 January 2001

Turtle Experts Meet to Discuss Trade of Freshwater Turtles and Tortoises in Asia

Under the auspices of the TRAFFIC and the Commission on International Trade in Wildlife, over 40 regional turtle experts from 16 countries attended a Workshop on Conservation and Trade of Freshwater Turtles and Tortoises in Asia. The workshop was designed for turtle ecologists, national conservation organizations, traditional Chinese medicine practitioners, and zoological advisors. Over one-half of Asian freshwater turtle and tortoise species are endangered, including 18 critically endangered species. Moreover, one species – the Yunnan box turtle (*Cuora yunnanensis*) – have been declared extinct.

A number of immediate and long-term recommendations came out of the effort to assist the conservation of Asian turtles. The workshop came about due to the fact that many populations of freshwater turtles and tortoises in Asia – especially those in southern China – are declining for a variety of reasons including rising trade in turtles for food, the international pet market, the use of turtles in traditional medicine, and habitat degradation and loss.

These measures included expeditious enforcement of all local, state and national regulations and legislation concerning the conservation of turtles; review, clarification and improvement of national legislation for effective protections of turtles native to the governing region; implementation and enforcement of the International Air Transport Association’s live animals regulations in all importing and exporting countries; proposals for new listing on CITES Appendix II of 93 different species found in Asia and which are not already listed on Appendix I or II; examination of the value and feasibility of a proposal to list all chelonians worldwide on at least Appendix II; support and encouragement of ongoing conservation programs both within and without Asia, especially as a goal to preserve species in their natural habitat; and

the consideration of a freshwater turtle farming proposal as part of a package of conservation measures.

A copy of the complete report on the Workshop may be ordered from the Chelonian Research Foundation at www.chelonian.org or purchased through Zoo Book Sales at www.zoobookzales.com. Likewise, the full text of the workshop proceedings and other materials on the subject are available on the TRAFFIC Web site at www.traffic.org. Source: *Traffic North America*, published by the World Wildlife Fund, Nov. 2000 vol. 3, no. 3

Species At Risk Act Reintroduced

The Canadian Broadcast Company's News reports that Canada's Liberal government has reintroduced last year's Species at Risk Act with "only minor improvements from previous attempts" With Canada's 300 species at risk facing growing threats from loss of habitat, the bill would "protect an animal's nest or den but not its surrounding habitat" and would be according to the Sierra Club of Canada be "the weakest endangered species law in the world" in spite of the fact that according to the Vancouver Sun 1/29, "more than 90% of Canadians would support a law to protect endangered species." Source: *GREENlines Issue #1312 2/6/2001*

Newly Discovered Primate Species May Already be Endangered

Scientists have discovered nine new species of lemurs and two marmoset species in the forests of Madagascar and Brazil but some of the new species "may already be endangered" says the Environmental New Service. Lemurs are "among the most endangered primates in the world," and Madagascar, second only to Brazil in primate diversity, has already lost "90% of all original natural habitats." Source: *GREENlines #1310 2-2-01*

New Wolf Species Tied to Ancient Forests/Norway OKs Wolf Pack Cull

Canadian biologists have "compelling evidence" that grey wolves living in British Columbia's coastal rainforests are "genetically distinct from any other kind of wolf in the world" according to a recent report in the *Vancouver Sun*. the discovery could have "profound consequences for the logging industry" since the wolves' primary food source are black-tailed deer which "can only thrive in old-growth forests". the wolf subspecies is believed to be the same as the wolves that "once flourished" in Washington, Oregon and California but "were eliminated from those states by habitat destruction and hunting".

In another story concerning wolves, Reuters has reported that disregarding protests from conservationists and neighboring Sweden, Norway has bowed to pressure from sheep farmers and given the go ahead to destroy two of the 8-10 wolf packs now living in southern Scandinavia. With as few as 51 known wolves in the region, the hunt using snipers on snowmobiles and in helicopters was scheduled to begin Feb. 10th and was targeting nine wolves. Source: *GREENlines Issue #1314 2/8/01*

Tuberculosis May Be Cause of LA Rhino Death

L.A. Zoo officials believe that the rare black rhinoceros that died earlier this month may have had tuberculosis. Tests conducted after the 24-year-old female was euthanized on 12 January showed signs of the bacterial disease, although it is uncertain what type of tuberculosis—human, bovine, or another variety—the animal had. Test results showed that bacterial pneumonia, anemia, and iron overload also contributed to Sweet Pea's death.

Only human and bovine forms of the disease pose a risk to humans. Janna Wynne, a zoo veterinarian stated that there is little danger that Sweet Pea transmitted the disease to other animals or humans. She had been in ill health in recent years and had contracted tuberculosis once before. The rhino had not been on public display since 1998. Zoo employees who came into contact with Sweet Pea, and frequently fed her by hand, wore protective clothing and have been tested twice a year for the disease.

A male black rhino that had had contact with Sweet Pea is being held in an isolation pen away from visitors and is being tested for tuberculosis. A second female, Shebani remains on exhibit at the zoo. --excerpted from information in an article in the *LA Times* by Jason Song

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@ksccable.com< We are no longer located at the Topeka Zoo, so please note new address!*

ANIMAL HANDLER...If working with Elephants appeals to you, we have a great opportunity. Ringling Bros. and Barnum & Bailey Center® for Elephant Conservation and Ringling Bros. and Barnum & Bailey® Circus, has immediate openings for an elephant handlers who aren't afraid to work hard caring for our elephants. Ringling Bros. and Barnum & Bailey Center® for Elephant Conservation is located in central Florida. Responsibilities include total animal care such as grooming, feeding, cleaning and exercising animals. You must be able to work flexible hours and must be able to lift/move up to 75 lbs. Prior experience working with Asian Elephants is preferred. Opportunities with Ringling Bros. and Barnum & Bailey® Circus require 100% travel throughout North America. We offer a competitive salary and benefits.

ELEPHANT HANDLER...If working with elephant's appeals to you, we have a great opportunity. Ringling Bros. and Barnum & Bailey, a Feld Entertainment production, has immediate openings for experienced elephant handlers who are not afraid to work hard caring for our elephants. Responsibilities include total animal care such as grooming, feeding, cleaning and exercising animals. You must be able to work flexible hours. Must be able to lift/move up to 75 lbs. 1 - 3 years experience working with elephants is strongly preferred. We offer a competitive salary and benefits including free housing, free show tickets and more.

For Either Position - Interested persons should send a resume to Feld Entertainment, Dept. ACDANAWW, PO Box 3238, Scranton, PA 18505-0238.; Fax: 888-435-3939; Email: Feld@Alexus.com or call **(800) 755-3893 ext. 607 for Animal Handler and Ext. 1217 for Elephant Handler**) EEO & Drug-Free Workplace

ANIMAL KEEPER...The Birmingham Zoo is working to grow and diversify its applicant pool for Animal Keeper positions. A degree in biology, or related field is preferred. Potential applicants are needed for future openings in the Primate, Carnivore, Hoofed Stock, Pachyderm, Bird, and Reptile departments. Please send cover letter and resume to: Marcia Riedmiller, Mammal Curator, The Birmingham Zoo, 2630 Cahaba Road, Birmingham, AL 35223. E-mail: mriedmiller@birminghamzoo.com Resumes will be kept on file for one year. EOE

AVICULTURIST...Tracy Aviary is seeking a highly motivated aviculturist to join our enthusiastic, professional team. We are a small institution where each person's contribution is vital. A BS in biology or a related field and at least one (1) year's experience working with birds in a zoological facility is preferred. The successful candidate will be involved in all aspects of avian husbandry for a large and varied collection that includes, among others, hornbills, cranes, pheasants, waterfowl, psittacines and raptors. Duties will include diet preparation, cleaning, enrichment, record-keeping, exhibit maintenance, minor veterinary care, interaction with the public, and training and supervising interns. Input to our long-term planning process will also be encouraged. Salary \$18,00.00 plus excellent benefits. **Open until position is filled.** Send cover letter, resumé, and three (3) references to: Nigella Hillgarth, Tracy Aviary, 589 East 1300 South, Salt Lake cCty, UT 84105 or fax information to: (801) 596-7325.

ANIMAL KEEPER-GUIDES...several positions available for 2001 season. May through October. Paid zoo experience preferred but volunteer experience acceptable. Non-smokers preferred. Applicants must have strong, audible voices, neat appearance, good personalities, and must work well with co-workers as well as with the public. Duties include daily animal care and feeding, exhibit cleaning and maintenance, various other maintenance duties, and talking to groups in a tour situation. Must lecture on both non-venomous and venomous reptiles. Also, must have experience in handling non-venomous reptiles or the willingness to learn. No personal pets. Salary \$210.00 per week, living quarters,

utilities, and uniforms furnished. Contact: Jim Miller, 89 Evans Cove Rd., Maggie Valley, NC 28751 (828) 926-1746. Please send resumé as soon as possible.

The following two (2) positions are available at The Toledo Zoo. For consideration submit resumé by 31 March 2001 to: Nancy Foley, Director of Human Resources, The Toledo Zoo, P.O. Box 140130, Toledo, OH 43614-0801. Please put Attn: Curator of Large Mammals ; or Attn: Large Mammal Keeper depending on which position you are applying for.

ZOOKEEPER – Large Mammals & Elephants...responsible for all facets of care for a diverse collection of large mammals, elephants, and carnivores. Includes daily care/feeding, cleaning/maintenance of exhibits, training/enrichment, and record keeping. Requires high school diploma, a degree in a related field and a minimum of one (1) year's working experience in a zoo mammal department. Prefer previous free contact elephant experience. EOE. Starting rate is \$11.41 per hour with progressive increases and benefit package.

CURATOR OF LARGE MAMMALS...position will be one of two mammal curators at the Toledo zoo. Requirements must be met for consideration and include: Bachelor's degree in animal science and two (2) year's supervisory/curatorial experience in a zoo setting. Must have proven management/supervisory skills and excellent written/oral communication skills. Elephant experience preferred. Responsibilities include acquisition, maintenance and care of pachyderms, carnivores and a diverse collection of other large mammals. Salary is competitive and dependent on qualifications. EOE.

ELEPHANT KEEPER...Wild Adventures has an immediate opening for an experienced elephant keeper. We re looking for an individual to work with two Asian cows. In addition to the upkeep of the elephants, this person must be willing to help with other animal keepers as needed. Please send resumé to: Peggy Husbands, c/o Wild Adventures, 3766 Old Clyattville Rd., Valdosta, GA 31601. Wild Adventures is a drug-free workplace.

ANIMAL KEEPER...position open in the West Los Angeles area. Start on an On-Call basis 4-5 days per week. May evolve into a full and/or part time keeper position with full benefits. Qualifications: Two (2) years animal management experience. Must consider this position as primary employment, and be available 7 days a week. Responsibilities: cleaning facilities, feeding, handling and training. Primarily birds and primates, but also reptiles, other exotic mammals, marine aquariums, and freshwater pond systems. Send resumé to: John Heston, Supervisor, Animal Department, 10236 Charing Cross Rd., Los Angeles, CA 90024. E-mail: jnheston@playboy.com<

AVICULTURE INTERN...interns receive intensive hands-on training in the care and maintenance of a large bird collection. They will experience all aspects of bird husbandry including general cleaning, handling, incubation, record keeping, public education, etc. Seeking college students or recent graduates with an interest in avian management/zoo biology. Interns will work with aviculturists for a minimum three-month period. This is a volunteer position with on-site housing provided. Possible stipend. Internships are available year-round. Our interns receive the same training as any new staff member, and most have gone on to paid positions in large AZA accredited institutions. Send cover letter and resumé with references to: Tracey Aviary, 589 E. 1300 South, Salt Lake City, UT 84105. Fax to: (801) 596-7325. ATTN: Kim Sorensen/Jennifer Morris.

SEAWORLD SAN ANTONIO EDUCATION DEPT. INTERNSHIPS...Announcing 2001 Education Internship Program for students seeking degrees in education, sciences, recreation or tourism. There are three types of internships available: 1) Instructional Internships 2) Camp SeaWorld (Day Camp) Internships and 3) Adventure Camp (Residential Camp) Internships. Internships are available from three to ten months. For further information and to obtain an intern information/application packet please contact: SeaWorld San Antonio Education Dept., Internship Program, 10500 SeaWorld Drive, San Antonio, TX 78251-3002 or call 1-800-700-7786.

HERPETOLOGY INTERNSHIP... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2001 spring, summer, and fall season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection,

collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles.

Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of - snakes in the area, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required.

To apply send a cover letter and resume to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. **Deadline for applications is: SUMMER - 15 March 2001; and FALL - 1 June 2001.**

ZOOKEEPER I...City of Folsom \$2284-2780/monthly + excellent benefits; City paid PERS; Incumbents feed, care for, perform maintenance work necessary for health and well-being of zoo animals; under direct supervision of Senior Zookeeper; 12 units of accredited college or university course work in animal science, zoology, biology, wildlife management, or closely related field is desirable; Resumes being solicited for future positions. Contact Personnel, 50 Natoma Street, Folsom, CA 95630 AA/EOE. www.folsom.ca.us phone: (916) 355-7202.

ANIMAL COLLECTION MANAGER...The EcoTarium, an interdisciplinary environmental science museum with non releasable wildlife, seeks a Manager for Animal Collection. Responsibilities include oversight and daily care for approximately 200 animals, supervision, hiring, training and evaluation of staff, working with veterinarians, exhibit planning, maintenance of exhibit habitats, facilitating access, use and handling of animals for public education, instituting and maintaining professional standards in all aspects of husbandry. Candidates must have: B.S. (M.S. preferred) in biology or zoology, minimum of five (5) years of animal care in a AZA accredited zoo, three (3) years or more of progressive supervisory experience, experience with ISIS and familiarity with and ability to employ operant conditioning and environmental enrichment, strong communication and computer skills. Salary mid \$30K with generous benefits. Send cover letter, resume and the names of three (3) references to HR, EcoTarium, 222 Harrington Way, Worcester, MA 01604. Full job description www.ecotarium.org. **Begin reviewing applications 19 March 2001.** AA/EOE

INTERNSHIPS...The Denver Zoo Wildlife Show will have several paid internships available beginning this spring and continuing until September. The Denver Zoo presents a mixed species show that includes, reptiles, mammals and both flighted and non-flighted birds. Interns will work 40hrs/wk and should be willing to work weekends and holidays. If you are interested in one of these positions please send a resume including availability to Public/Animal Programs, Denver Zoological Foundation, Gates Center, 2300 Steele St., Denver, CO 80205 or contact Brad Parks at publicprog@denverzoo.org Ryan Knight, Wildlife Show Lead Trainer Denver Zoo 2300 Steele St. Denver, CO 80205; phone 303-376-4833 fax 303-376-4839

CHIMPANZEE KEEPER...Goin' Ape Facility (Auburn, CA) seeks chimpanzee keeper. Three (3) years experience with chimpanzees or great apes is preferred. Salary for this full-time position is \$19,200.00 plus medical after 60 days. Please e-mail or fax resume **by 15 March 2001** to: Carol Lille - E-mail: chimp@foothill.net (please paste resume to email do not send as an attachment); Fax (530) 823-1874; Phone: (530) 823-8177. Note: These are retired film chimps that are designated to go to the "PACT" People and Chimps Together's facility once it is built (www.chimppact.org). Currently the chimps are housed at Goin' Ape.

*Positions posted with AAZK, Inc. may also be found on our website at www.aazk.org
Also, you may want to check out the AZA Member Institution job listings at <http://www.aza.org>*

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includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission
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ANIMAL KEEPERS' FORUM



The Journal of the American
Association of Zoo Keepers, Inc.

APRIL 2001

ANIMAL KEEPERS' FORUM, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614
Phone: 1-800-242-4519 (U.S.) 1-800-468-1966 (Canada) FAX (785) 273-1980

APRIL 2001
Vol. 28, No. 4

Managing Editor: Susan D. Chan • **Associate Editors/Enrichment Options**

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Zoo Infant Development Project - Nell Bekiares, Cincinnati Zoo (Birds/Passerines)

Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

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About the Cover.....

This month's cover features the African elephant (*Loxodonta africana*) drawn by Paul Kmiatek, a keeper at Queens Wildlife Center, Flushing, NY. While this species could formerly be found anywhere south of the Sahara Desert where water and food was available, its range and population have declined dramatically since the 1970s due to ivory hunting and more recently, human population growth. There are two subspecies of this elephant: the savanna or bush elephant (*L. a. africana*) of which males can reach a height of 11 ft. and weigh 13,000 lbs.; and the somewhat smaller forest elephant (*L.a. cyclotis*). There have also been unconfirmed rumors of a dwarf elephant standing only 5-6 ft. tall living deep in the forests of central Africa. Thanks, Paul!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to Animal Keepers' Forum will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKE. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$3.00 each.

E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com< You may reach Susan Chan and Animal Keepers' Forum at: akfeditor@kscable.com<

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type "Elvis" in password box.
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Scoops & Scuttlebutt



Chapters Acknowledged for Contributions

The AAZK Board of Directors and the Administrative Office staff would like to thank the following AAZK Chapters for their recent donations to the Association: El Paso del Norte (El Paso Zoo) \$100.00 [general operating fund]; NorthernLights Chapter (Lake Superior Zoo) \$236.00 [general operating fund]; Greater Kansas City AAZK Chapter (Kansas City Zoo) \$47.82 [undesignated]; Little Rock AAZK (Little Rock Zoo) \$500.00 [general operating fund]; Rocky Mountain Chapter (Denver Zoo) \$500.00 [AAZK Endowment Fund pledge]; Virginia Chapter (Virginia Zoological Park and Virginia Living Museum) \$300.00 [\$100 general operating fund; \$200 CPR Fund]; Lincoln Park Chapter (Lincoln Park Zoo) \$100.00 [general operating fund]; Point Defiance AAZK Chapter (Point Defiance Zoo & Aquarium) \$1,351.63 [to be split equally between general operating fund and CPR Fund]; Puget Sound Chapter (Woodland Park Zoo) \$1300.00 [undesignated]; Knoxville Zoo Chapter (Knoxville Zoo) \$500.00 [AAZK Endowment Fund]; AAZK Sacramento Zoo Chapter (Sacramento Zoo) \$100.00 [general operating fund]; South Florida Chapter AAZK (Miami MetroZoo) \$500.00 [general operating fund]; AAZK - Audubon Zoo (Audubon Zoo) \$150.00 [CPR Fund]; San Diego AAZK Chapter (San Diego Zoo and Wild Animal Park) \$150.00 [general operating fund]; AAZK of Cheyenne Mountain Zoo (Cheyenne Mountain Zoo) \$100.00 [AAZK Endowment Fund]; San Antonio Chapter (San Antonio Zoo) \$50.00 [AAZK Endowment Fund]. Such continuous generosity on the part of AAZK Chapters as well as individual AAZK members allows the Association to carry out its projects and programs as well as plan for a secure financial future for AAZK, Inc.

AZA Bear Taxon Advisory Group Meeting Announced

Bear Essentials: Back To The Basics Of Bear Care will be held 27-30 April at the Detroit Zoo. "Bear Essentials" is the theme for the Bear TAG workshops. The goal of this 5th workshop is to provide guidance in the basics of bear care. Back to the Basics will talk about the basics of bear care in husbandry, veterinary care, nutrition and maternal management. The very popular conservation section of the workshop will be continued with talks on Black and Polar Bears. For more information about the workshop, to register please contact: Diana Weinhardt Bear TAG Chair, Houston Zoo, 1513 N. MacGregor, Houston, TX 77030; e-mail beartagsow@aol.com

North American River Otter Husbandry Notebook, 2nd Edition Published

The 2nd Edition of the North American River Otter Husbandry Notebook is now available. This updated and expanded 283 page volume contains contributions from several authors. Information is divided into 17 chapters on: Taxonomy; Distribution; Status; Identification & Description; Behavior, Social Organization & Natural History; Reproduction; Captive Management; Hand-Rearing; Feeding & Nutrition; Health Care; Behavioral & Environmental Enrichment; Training or Behavioral Modification; North American River Otters in European Institutions; Rehabilitators and Otter Resources; Websites, On-Line Education and Useful Addresses; Otter Tales and Legends; General Bibliography. This volume is available at a cost of \$20.00 plus \$2.50 shipping (U.S.), \$5.00 (Canada), \$12.00 (overseas). All funds raised will be contributed to the American Association of Zoos and Aquariums' (AZA) Otter SSP. For additional information contact: Jan Reed-Smith, jrsotter@iserv.net or send a check made payable to John Ball Zoo Society, Attn. Otter Husbandry Notebook, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504.

2000 Bowling for Rhinos Monies Distributed to Sanctuaries

Funds raised during the 2000 Bowling for Rhinos events have been distributed. Checks for \$21,541.37 each went to the International Rhino Foundation and the Adopt-A-Park Program at the Minnesota Zoo. Funds sent to IRF go to support rhino conservation efforts in Bukit Barisan Selatan National Park (BBS) and funds sent to the Adopt-A-Park Program go to programs in the Ujung Kulon National Park. Both parks are in Indonesia. The IRF monies continue to support the rhino protection units (RPU) in BBS. Projects to use the funding in Ujung Kulon were being determined at this writing.

Additionally, the Bowling for Rhinos 2000 events provided \$96,000.00 to the Lewa Wildlife Conservancy in Kenya. All those AAZK Chapters, zoos and individuals who participated are to be congratulated for their highly successful efforts. We all hope the 2001 Bowling for Rhinos will be equally as successful!

Rhino Keeper Workshop Scheduled at San Diego

The San Diego Wild Animal Park is planning to host a three-day rhino keeper workshop from 8-10 May, 2001. This workshop will focus on the keeper's role in the captive management of all rhino taxa and how that role can facilitate and enhance captive rhino management. The event will include both speaker sessions and active participation by attendees in working groups. The workshop is being sponsored by the Zoological Society of San Diego, and is endorsed by the International Rhino Foundation and the Rhino TAG.

For further information contact: Rhino Keeper Workshop Coordinator, c/o Farshid Mehrdadfar, San Diego Wild Animal Park, 15500 San Pasqual Valley Road, Escondido, CA 92027-7017; Tel. (760) 796-5681; Fax - (760) 480-9573; e-mail: Rhinos@sandiegozoo.org<

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities: *The Conservation, Preservation and Restoration (CPR) Grant* – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration.

The Zoo Keeper Grants in Research – Two \$750.00 grants are funded to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member in good standing of AAZK, Inc.

Deadline for application submission for either grant option is **31 May 2001**. Successful grant recipients will be announced at the AAZK National Conference in Toronto, Canada in early October 2001. The grant cycle runs from 01 January 2001 to 31 December 2001. For further information or an application packet visit the AAZK website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committee Chair, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504; e-mail: jrsotter@iserv.net; Fax: (616)336-3709. Be certain to specify whether you are requesting information on the CPR or Research Grants.

ATTENTION All Professional AAZK Members - Election Ballots Arrive This Month

All AAZK Professional members are advised that they will be receiving ballots for the upcoming AAZK Board of Directors election during the month of April. Members are asked to mark their ballots and return them in the envelope provided **by 1 June 2001**. Please DO NOT include any other AAZK correspondence, orders, etc. in this envelope as it does not come to AAZK Administrative Offices. Include only your completed ballot. The Professional Membership will be electing three new Board Members to fill the positions being vacated by Jacque Blessington, Bruce Elkins and Scott Wright whose terms end with the 2001 Conference. New Board members are elected for four-year terms which will begin at the close of the 2001 Conference and run until the close of the 2005 Conference.

San Diego Zoo Offers Koala Research Participation Opportunity

Since 1994, the Zoological Society of San Diego, in conjunction with the Australian Koala Foundation (AKF), has been organizing teams of representatives from interested zoos to assist in collecting field data in Australia with regard to koala habitat utilization and tree species preferences. The data gathered will be analyzed to develop regional models for habitat use by koalas and to subsequently complete further computerized Geographic Information System based mapping specific to koalas called the 'Koala Habitat Atlas'.

Two 2001 field expeditions are currently being offered to zoo representatives interested in participating in this koala conservation effort. Proposed dates for the expeditions are as follows:

1. August 12 to 25 (Noosa, Queensland): This trip will continue investigation of the impacts of habitat fragmentation in this area, to refine the identification of Habitat Linking Areas and Habitat Buffers, and to prepare for the production of a Shire-wide Koala Plan of Management. Participants will be charged US\$1,000 for room, board and transportation for the duration of the field work.

Participants will fly in to Brisbane, and will be transported by the AKF to field work locations in Noosa.

2. November 4 to 17 (New South Wales South Western Slopes/South Eastern Highlands): This trip will incorporate the AKF's "Status of the Koala" conference, being held in Canberra from 5 to 7 November. The field trip following the conference will be the first to this region of New South Wales, and will aim to collect initial data on tree species preference and habitat use, as well as population distribution. Participants will be charged US\$1,200.00 to attend both the full conference and the field trip (all room, board and transportation costs covered for the duration of the conference and field work), or US\$800.00 to attend the field trip component alone. The field trip will focus on a number of target areas within an approximately 150km radius of Canberra and will depart from Canberra on the morning of 8 November. Participants will fly in to Canberra and will be transported by the AKF to field work locations.

Accommodation during the field work may be in dormitory type facilities with participants helping to prepare group meals. Total costs incurred by each participant include the prices above, plus airfare and any extra costs incurred outside of the actual field work, such as hotel and meal expense before or after the field work is complete. Spaces are limited and will be filled on a first come first serve basis.

Interested participants should contact Valerie Thompson by mail, fax, phone, or e-mail as listed : Valerie Thompson, Associate Curator of Mammals, San Diego Zoo, P.O. Box 120551, San Diego, CA 92112-0551; phone (619) 685-3226, fax (619) 232-4117, e-mail vthompson@sandiegozoo.org
--from ZooNews Digest #145

Subject experts needed for update of Grzimek's Animal Life Encyclopedia

Grzimek's Animal Life Encyclopedia is an internationally prominent scientific reference compilation, first published in 13 volumes in German in the late 1960s. The Gale Group has acquired rights to revise the English translation of this acclaimed series and is seeking qualified members of the scientific community to serve on the Grzimek's Editorial Board.

The original *Grzimek's Tierleben Enzyklopaedie* was prepared under the editorship of notable zoologist Bernhard Grzimek (1909-1987). Mr. Grzimek had served as director of the Frankfurt Zoo and also directed the documentary film "The Serengeti Must Not Die," which won Germany its first Academy Award.

The Grzimek's set is known for the clarity of its scientific reporting and the comprehensiveness of its coverage. It describes animals found anywhere on the globe, in the following format:

Vol 1: Lower animals

Vol 2: Insects

Vol 3: Mollusks and echinoderms

Vol 4: Fishes

Vol 5: Fishes II/Amphibians

Vol 6: Reptiles

Vols. 7-9: Birds I - III

Vols. 10-13: Mammals I-IV

Detailed, multi-page articles provide descriptions of an animal's life cycle, geographic distribution, food systems, predators, and overall ecology. The set is well-illustrated with high-quality photographs, drawings, maps, charts, and tables.

The Gale Group will be undertaking a complete revision of the series, expanding it to 16 volumes, commissioning new color images, and updating the information while also making the set easier to use.

To accomplish this goal, Gale is seeking academic specialists to contribute articles, subject experts to serve on the Editorial Board, and a luminary in the field of zoology to oversee the publishing program as Editor-in-Chief. To apply for these positions or to nominate a candidate, please send a letter of interest and a resume to: donna.olendorf@galegroup.com Or mail to: Donna Olendorf, Senior Editor, Science Team 2-651, Gale Group, Farmington Hills, MI 48331.



Conference 2001

Toronto, Ontario, CANADA

September 30th to October 4th, 2001

Notice to Potential Exhibitors

There's a lot of available space in the Conference Exhibit Hall for AAZK Chapters, TAGS, and other relevant parties interested in selling their wares or promoting their causes at the National Conference. The Hall is adjacent to the main Ballroom where the sessions will be held. A deposit of 50% is required to hold a table. The exhibitor keeps all profits, though the donation of an auction item would be greatly appreciated.

Cost per table for the duration:

\$100 (CD) for non-profit group such as an AAZK Chapter or a TAG.

\$200 (CD) for profit groups such as wildlife artists, suppliers, etc.

For more details contact Lesya Pedden at aazk@zoo.metrotor.on.ca or phone (416) 397-9055.

Notice to the American Contingent

Authorities here in Canada citing the "official" line told us you need evidence of U.S. Citizenship when crossing the border between our two countries. **A U.S. Birth Certificate and Picture I.D. or U.S. Naturalization Papers will suffice.**

....and here's some "unofficial" advice from "The Mounties" (Canadian Police).

There's a misconception in certain quarters that Canada is some sort of giant 51st State. The fact is, despite our territories being joined at the hip, Canada is an independent State, is in a state of independence, if you will. Some implications of this for American delegates to the 2001 AAZK Conference in Toronto are as follows. Firstly, proof of citizenship will be required when crossing the border. Those tiny Fourth-of-July-flags will no longer be accepted. Secondly, because your dollar is worth so much more than ours is, references to "the Almighty Dollar" during your visit may be seen as bragging by some and may land the braggart in hot water. In the interest of diplomacy, and for your own safety, we ask that you employ the generic term "buck" when engaged in financial transactions here.

For more Conference info, visit our website at aazktoronto.tripod.com. Incidentally, you can also link to our website through the National AAZK website at www.aazk.org<

Coming Events

13th International Conference on Bear Management and Research - 21 - 25 May 2001 in Jackson Hole, WY. For further information visit conference website: <http://outreach.uwyo.edu/conferences/bears>

International Elephant and Rhino Research Symposium - 7-11 June 2001 at Vienna Zoo Schoenbrunn, Austria. For further information contact: Hschwammer@zoovienna.at Or visit <http://www.zoovienna.at>

The Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or you may contact the local hosts Andy Balustein (blaustea@bcc.orst.edu) or Lynne Houck (houck@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aav.

American Association of Zoo Veterinarians - September 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of Wildlife Veterinarians and the Nutrition Advisory Group. Sessions include reptilian, avian and aquatic animal medicine, environmental activism, clinical pathology, anesthesia, behavior/escapes, megavertebrates, small mammals, nutrition, field project reports, and case reports. There will also be a poster session, veterinary student paper competitions, and workshops/wet labs. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (610) 892-4812; fax (610) 892-4813; e-mail aazv@aol.com

International AAZK Conference - 30 Sept. - 4 Oct. 2001 in Toronto, Ontario, Canada. See this issue of AKF for Call for Papers, Registration/Hotel Forms, Pre- and Post-Conference Trip Details, etc. or visit the AAZK Conference website at: <http://aazktoonto.tripod.com>

5th International Conference on Environmental Enrichment - 4 - 9 November 2001 at the Taronga Zoo, Australia. For further info contact: Mhawkins@zoo.nsw.gov.au Or visit <http://www.zoo.nsw.gov.au>

Fourth Annual Zoos & Aquariums: Committing to Conservation Conference - 28 November to 2 December 2001 in Cocoa Beach, FL. Hosted by the Brevard Zoo, our goal is to bring field researchers and zoo personnel together in an informal setting in order to promote a greater involvement of zoos and aquariums supporting *in situ* work. This conference in particular will focus on a practical common-sense approach on how zoos and aquariums can become involved in supporting field research and conservation. The conference will be a mixture of sessions, panel discussions and round-tables. Conference registration fee (\$175) will include sessions, some meals and social activities. Orlando Conference Committee - Schedule of Events, Papers, Abstracts, Speakers: Beth Armstrong - (321) 454-6285; Registration Chair: Michelle Smurl - (321) 254- 9453 ext.17; Registration/Post Conference Tour: Peggy Sloan - (321) 254-9453 ext. 14; Conference Chair: Margo McKnight - (321) 254-9453 ext. 23.

International Serow Summit: The 2nd Symposium on Capricornis and its Related Species - preliminary plans are now being made for this meeting, organized by the Japan Serow Center, to be held in 2002. Dates are not available as yet. The meeting will center on conservation and breeding of Serows including Japanese Serow, Goral, Takin, Chamois, Saiga, Chiru, Mongolian Gazelle, Rocky Mt. Goat and other related antelopes. They have issued a Call for Papers dealing with any aspects of these species's management and conservation. Further details will be announced as available. In the meantime, you may contact the Japan Serow Center and Director/Program Chair Yutaka Mori or Kako Y. Yonctani, Advisor/Coordinator; phone: 81 (593) 92-2028; Fax 81 (78) 851-1537; e-mail: gozaisho@oregano.ocn.ne.jp



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ABC's

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

QUESTION

American Zoo. This may seem very basic, but how often should the animal's name and/or command for the desired behavior be used in requesting an animal to perform a certain action? Can the animals adapt between different styles of training?

ANSWER

Basics are important to build a solid foundation. This question involves shifting Chimpanzees (*Pan troglodytes*) and Orangutans (*Pongo pygmaeus*) and the inability to get them to cooperate for all the trainers.

The trainers are having difficulties in establishing consistency within their team. Consistency is what it is all about. If you are all not working together and sticking to your guns then you are sabotaging any progress.

Can the animals adapt between different styles of training?

Yes and No! Some animals can differentiate between trainers. This can get complicated depending on the species you are working with and whether or not the animal is a veteran to training or a novice.

Inconsistency and lack of clarity can really botch up a training program. Frustration and confusion contribute to aggression and so without consistency in your team you may well be on your way to having some serious problems.

If your team is not working together then you are making your jobs harder and more complicated than they need to be. Some people have a greater predisposition to training than others so you may want to consider moving duties around to accommodate these talents.

How often should the animal's name and/or command for the desired behavior be used in requesting an animal to perform a certain action?

In my work with zoos and pet owners I see the same high verbal challenges. One of the worst is the tendency to talk too much. Repeating the name of an animal or the command just teaches the animal to ignore you.

This is amusing since it is entertaining to have people repeat commands over and over and over again, follow their animals, or bend, stretch or contort in order to get the animal's attention! Of course the animal just ignores them.

The whole idea behind training an animal is to achieve compliant behavior and the animal's attention

without such efforts. I encourage using the ask, tell, take action method. (It is the same as the 1, 2, 3 used with little kids.) You will not ask more than twice before taking action.

Use the name of the animal to get its attention and buy it a couple of seconds. (You may initially have to train this by rewarding attention or eye contact when you say their name.) Then give the command in a normal tone of voice, use your cue or discriminative stimulus at the same time. Wait for compliance. If you do not get it, try again. If there is no response then you go into action. Ideally you give a time-out, regroup and then try again later. (You may need to assess your positioning, hierarchical influences if these are problems.)

There are other common training errors beyond the tendency to be highly verbal. These include: giving into fear and not working through situations, relying on consistent schedules of reinforcement instead of progressing, and lack of understanding and preplanning. Let's take a look at these since I suspect they are at the root of the challenges you are facing.

Fear by not working through situations.

One of the most common training errors I see in novice trainers is the tendency to want to shortcut the process of training. Back in an earlier column (1996), I talked about a dolphin trainer who forced the issue with an animal. He had the option of taking the several weeks to accomplish getting a voluntary beaching behavior but did not want to.

The result was that the firm lost six months of training progress because he forced the animal to do something that it was not ready to do. The dolphin became uncooperative and all its behaviors broke down because of the attempts to shortcut. This "get it done immediately" attitude stems from an old style of animal management and training. Many people still fall back into attempts to force animals to comply or to scare them into cooperation.

Realize that you are working at establishing a trusting, cooperative and fun training experience for your animals. Force techniques undermine any trust you have tried to gain and actually prevent cooperative behavior. The two species that you are working with find that it is more entertaining to resist humans and usually have a great time training their handlers.

Begging, luring, or trying to scare them in are not good training techniques. They are having a ball with manipulating you just like they often do with the public! The other pitfall you are facing is a little bit obscured. So, let me ask you a question.

If you are waiting for the apes to comply and then rewarding them for finally complying, what are you rewarding? The answer is that you are rewarding resistance and uncooperative behavior. You can actually be escalating the situation and making it worse.

If you have ever known anyone with barking dogs you can see how this works. The dogs bark and they get scolded; not much happens except that they get some attention. Later, they do it again. This time the owner delays responding. This delay increases the duration of the barking and they get attention after barking for a longer period of time. So the behavior continues to escalate in this manner until the dogs bark incessantly.

Do you see how that works? The same thing is happening with the apes. If they don't cooperate and then get rewarded anyway, you are rewarding longer and longer intervals of non-cooperation.

Consistent schedules of reinforcement

Many novice trainers that I encounter are still using consistent schedules of reinforcement and wonder why they are making such little progress in their training. If your team is still using consistent schedules of reinforcement you need to progress.

If your animals are manipulating your time schedule through their lack of compliance then you might want to go to variable schedules of reinforcement and set up time interval limits.

If they do not comply within the time interval that you have established, give a time-out or end the session and try again later. You may have to alter your daily schedule to make this a possibility but it will be worth the effort.

Lack of understanding and preplanning

Many groups of trainers do not take the time to meet and plan their strategies. Often, they don't even know what has been going on when they get back from their days off. To make progress you have to be consistent; to be consistent you need to plan, and then you can work as a team.

When you work with multiple animals and multiple trainers it requires that you meet with each other and map out a plan. Regular discussions should include defining how you are going to accomplish a goal, what consequences there will be and what steps you will take. Daily discussions and weekly meetings and training logs can help you to do this.

About the Author: Since 1978 Diana Guerrero has worked professionally in a variety of animal facilities. She has been certified by a variety of educational organizations such as the Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Affection Animal Training School, The International Training Centre at the Jersey Wildlife Preservation Trust in England, and program extensions with Marwell Zoological Park and Kent University.

Her unique adventures with animals of all types give her unrivaled experiences and insights. Information on seminars, training, courses, animal careers and publications are available at her website: <<http://www.arkanimals.com>> com <<http://www.arkanimals.com>> >. Questions for ABC's should be submitted to Diana directly via email: <arkabc@arkanimals.com> or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.

ORANGUTANS GIVEN A DECADE: Researchers from Wildlife Conservation Society predict that "the world's largest natural orangutan population will be extinct in a decade" unless poaching and habitat destruction can be stopped reports the Environmental News Service. With losses running at a thousand a year, the orangutan population has plummeted from 12,000 in 1993 to just 6,000. An "unstoppable pandemic of illegal logging, "backed by the Indonesian military and police, is blamed for declines of up to 60% in some areas.

Source: GREENlines Issue # 1330 3/5/01

AAZK Announces New Members

New Professional Members

John J. Connor, **Southwicks's Zoo (MA)**; Lisa J. Cummings and Sharon M. O'Keefe, **Zoo New England (MA)**; Kimberly Henry, **Oglebay's Good Zoo**; Kimberly Hess, **Erie Zoo (PA)**; Nicole Leonard, **The Philadelphia Zoo (PA)**; Amy B. Chenderlin and Amy Demchak, **The Baltimore Zoo (MD)**; Craig Schultz and Pamela Jones, **Disney's Animal Kingdom (FL)**; LeAnne Brady, **Miami Metro Zoo (FL)**; Nicole Grawe, **Lion Country Safari (FL)**; Jenny Hummel and Heather Haigh, **The Nashville Zoo at Grassmere**; Sam Clites, **Louisville Zoo (KY)**; Vanessa Steinbugl, Adam Davis, Walter Chalfant and Juston Wickham, **The Wilds (OH)**; Lacey Meyer, **African Safari Wildlife (OH)**; Dino Michalski, **The Toledo Zoo (OH)**; Lisa Goodwin, **Washington Park Zoo (IN)**; Melissa Lorence, **Columbian Park Zoo (IN)**; Caitlin Kocsis and Chris O'Donnell, **Detroit Zoological Institute (MI)**; Janice Tomlian, **Potter Park Zoo (MI)**; Joan Volpe, **Milwaukee County Zoo (WI)**; Jerry Cade, **Wildlife Science (MN)**; Joan C. Stasica, **Great Plains Zoo (SD)**; Jill Gossett and Christine Sumner, **Lincoln Park Zoo (IL)**; Dorothy J. Henthorn, **Oklahoma City Zoo (OK)**; Tiffany Barnes and Jesse T. Gilbert, **Tulsa Zoo and Living Museum**; Alena Lamirato, **Dallas Zoo (TX)**; Reanne Streater, **Ft. Worth Zoo (TX)**; Melissa Glasser, **Denver Zoo (CO)**; Shauna L. Andersen, **Pocatello Zoo (ID)**; Joanna Crego, **Heritage Park Zoo (AZ)**; Don Scott, **Shambala Preserve (CA)**; Stanley Held, **The Oregon Zoo (OR)**; and Helen Shewman, **Woodland Park Zoo (WA)**.

Renewing Contributing Members

June L. Masek, Docent
Cleveland Metroparks Zoo
Cleveland, OH

Geoff Hall, Director
Red River Zoo
Fargo, ND

Renewing Institutional Members

Richard Buthe
Lewa Wildlife Conservancy
Ft. Washington, PA

Nancy Falasco, Director
Brandywine Zoo, Wilmington, DE

Birmingham Zoo, Inc.
Birmingham, AL

Omaha Zoo Library
Omaha's Henry Doorly Zoo, Omaha, NE

Dean Harrison, President
Out of Africa Wildlife Park
Fountain Hills, AZ

Mickey Ollson, Director
Wildlife World Zoo, Litchfield Park, AZ

Gordon Henley, Director
Ellen Trout Zoo, Lufkin, TX

New Institutional Members

SPSNQ (Jardin Zool. du Quebec)
Charlesbourg, Quebec, Canada

Henry Vilas Zoo
Madison, WI

MOVING?

Please let us know when you change your address! It costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr.
Gainesville, TX

Question

What can our facility do to increase dive safety in our aquatic operations?

Comments

Dive safety is an issue that can never be taken lightly. Simply put, the probability that an accident can occur during a dive is inherently high due to the nature of the activity. This is not to say that diving is an unsafe activity, thousands of people safely dive every day worldwide. Still, the potential for problems is there, especially when it becomes part of the job description. The key to effective dive safety is to make the safety procedures part of the daily routine. In other words, it becomes part of your "system".

Pre-Dive Procedures

- Physical fitness in diving should not be underestimated. If you are not in good condition, how can you as the diver withstand the physical rigors of the dive or manage air consumption? A weekly fitness program should emphasize cardiovascular activity.
- Appraisal of dive conditions is applicable to not only open water dives, but to closed environment tank dives as well. For example, if the specimens have been unusually aggressive lately, has the cause been identified and the situation addressed before going in the tank?
- Pre-dive equipment checks should be a mandatory part of the dive procedure. Throwing on your gear and jumping in the water is the mark of an amateur, not a seasoned diver. Inspect and test your equipment, then your partners, before hitting the water. Posted graphics should help as a working checklist for reference.
- The "buddy system" should be used at all times. If diving a tank alone, then post someone at the viewing glass or entry point. Solo dives are risky and should only be attempted by advanced divers who have been trained for that type of activity.
- Current research indicates the presence of previously unknown micro-bubbles of gas in the body. Safety stops should be implemented whenever possible in the dive profile to provide an additional margin of safety against DCS (Decompression Sickness).
- Always remember to ascend slower than your bubbles. Most DCS incidents occur in shallow water due to rapid changes in pressure. Posted graphics should include this for ready reference.

Post-Dive Procedures

- Shallow water dives should always be counted in the repetitive profile. "Bubble time" is the same whether it's at depth or not. Continuous shallow water dives still put a diver closer to the DC (Decompression) limits. This is especially easy to forget when performing tank dives. In short, you are underwater, breathing under pressure, and the time in reference to the depth should be counted and logged. Check your tables and watch your computer.

- Always log every dive. If an accident occurs, emergency responders will need to reference your profile. Is this your fifth dive in three days or fifteenth? How saturated are you?
- Equipment should be inspected and maintenance performed immediately following the dive while breaking your gear down.
- Equipment should be repaired immediately if a problem is discovered. It's easy to forget the small problems such as o-rings or gaskets, until it's too late.
- Always allow sufficient time to out-gas after reaching your limit on your dive profiles. Dive computers are great for this task.
- Remember to communicate all problems both verbally to the staff and in writing on the daily report. Communication is the key!

Equipment Maintenance Procedures

- It sounds basic, but always perform a daily check of your mask, snorkel, fins, boots, and weight belt for stress tears that can complicate a dive.
- Inspect regulators, valves, hoses, and BCD's (Buoyancy Compensation Device). Pay special attention to gaskets that tend to tear. O-rings should be treated with silicone and wiped clean or replaced. Inspect on a weekly basis.
- Tanks and Spare Air units should receive a VIP (Visual Inspection Procedure) and hydrostat testing on an annual basis. Valve o-rings should be checked daily. Tank boots, carrying handles, and such are helpful.
- DCS and first aid equipment should be inspected on a weekly basis. Examples would include O₂ units, trauma and rescue kits, and basic dive first aid kits. Constant repair and restocking is a must and it also tracks usage of materials by the staff.
- Dive lights, underwater tool kits, and welding torches should be inspected and serviced on a weekly basis.
- Compressors should be serviced on an annual basis to insure that CO₂ levels remain low, trace gases remain in line, and that oils and solvents are not being vaporized and dispensed with the air.

Training and Safety Procedures

- Continuing education is available from Professional Association of Diving Instructors (PADI), National Association of Underwater Instructors (NAUI), and Scuba Schools International (SSI). This should be made available to all staff and factored into the budget. Advanced divers are typically more conservative.
- Refresher courses should be held on an annual basis on-site.
- Support Divers Alert Network (DAN). They make diving safer for all of us and are leaders in dive safety research. Their oxygen course is not only useful, but also imperative for emergencies.
- Make advance arrangements with your local emergency room for not only DCS treatment, but venomous bites and stings as well.
- Consider adding an EMT with a dive background to the staff.

Next Month: (Two Questions) What options does a zoological facility have in the event of a long-term loss of electrical power and are your comments based on training and technical knowledge or combined with crisis experience?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF.

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

Axis Deer Training at Disney's Animal Kingdom

*By Tina Fridman- Animal Keeper
Disney's Animal Kingdom, Lake Buena Vista, FL*

Axis deer (*Cervus axis axis*), originate from Asia: Sri Lanka and India. Their habitat is mainly grasslands and open forests. Their diet in the wild consists of grasses, flowers, fruits, and browse. These deer are normally found in herds of 5-20, however herds of 100-200 have been spotted. Here at Disney's Animal Kingdom we have 0.5 Axis deer. At DAK their diet consists of an ADF-16 pellet, various fruits and vegetables, a variety of greens, alfalfa hay and regular grass hay. They are currently being trained for a variety of behaviors, such as target to an object, step on a scale, take liquids from a syringe, and now crate training has begun.

Target Training

We started with target training because this behavior would allow us to position the deer in certain locations which would allow the keepers to get an accurate visual check. It also allows the keepers to incorporate further training such as scale, syringe and crate training.

We started by attaching a float onto a dowel, which became the target. Next we introduced the deer to the target by letting them approach the keeper to investigate the target. A reward was given when they approached the keeper with the target. A clicker was used as a bridge, and a click was given as they ate the reward. Eventually, contact was made with the target, then we bridged and a reward was given.

Next the target was raised or lowered or moved side to side so the deer would have to follow the target to make contact. Again the deer were rewarded every time they followed the target and made contact. They were asked to station for three to five seconds, and the bridge was used with a reward again.

Next the keeper increased the distance between the deer and the target to encourage them to walk up to the target. With each training session the distance was increased by two to three feet. Eventually the deer would reliably walk up to the target on a consistent basis.

We have one dominant deer that will not allow the other deer to participate in the training sessions. Therefore, we decided to introduce a different target for her, which is a red Kong® toy on the end of a dowel. She accepted her new target with no problems, which allows the keepers to work the other four deer without any interruptions.

Scale Training

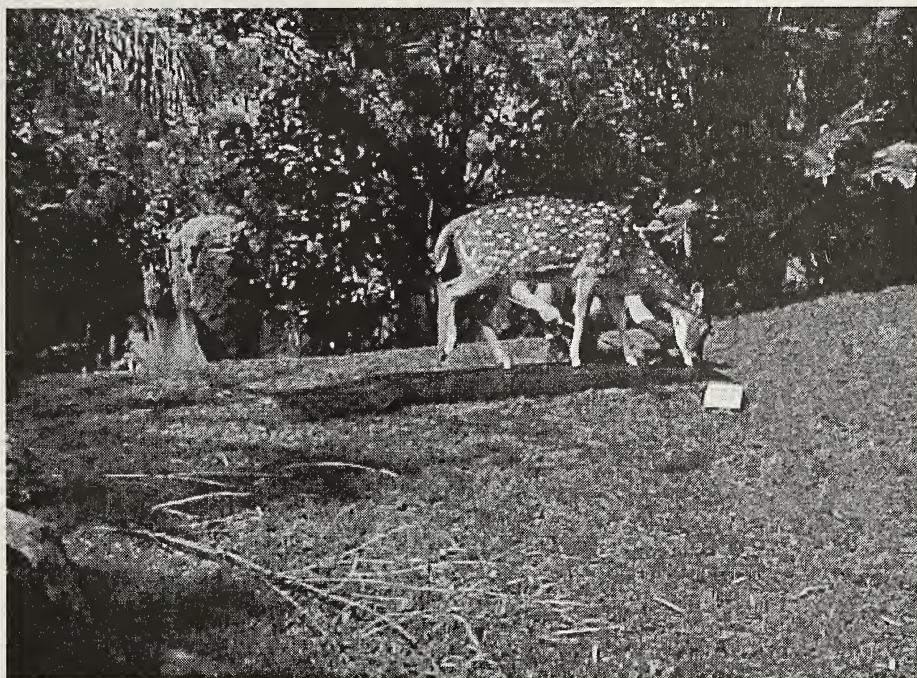
This training was the next step after target training. First we introduced the deer to black mats in their holding stalls at night, to get them used to the mats. The mats were going to be placed over the scale to prevent slipping. Food was placed on the mats, as a reward, if the animal went near it.

Next we introduced the scale reader (a small box with a long curly cord), by taking it into their habitat and setting it down. Several deer approached it to sniff, but no reward was given at that time. Again we allowed them to get used to this new item. Next we took the scale, the reader,

the target and the black mat into their habitat to introduce the whole concept of scale training. To our surprise, the dominant female approached the scale with no hesitation. We were able to target her onto the scale and station her long enough to get an accurate reading. Once she stepped onto the scale, a clicker was used as the bridge, and she received a reward.

Once a week the whole unit is taken out to their habitat to allow other deer to acclimate to the scale. This exhibit is a mixed-species exhibit, containing storks, kangaroo, cranes and waterfowl, as well as the deer. All are currently being scale trained. Since the kangaroo and deer use the same scale, the kangaroo also approach it during the deer training sessions. This should not cause any challenges because the kangaroo are scale trained in a different location and a different training method is used. The kangaroo are not being reinforced for approaching the scale during these sessions, so they have no reinforcement history of going on the scale when on exhibit.

After two sessions of scale training, we successfully have the one dominant female trained, with the others approaching the scale to investigate. We hope to eventually have all five deer scale trained.



Axis deer at Disney's Animal Kingdom are acclimated to the black mats which would eventually cover the scales used in collecting weights on the animals.

Syringe Training

We decided to try syringe training in an effort to get the animals to take oral medications. We started by introducing the five Axis deer to the syringe, letting them approach and sniff the syringe. A reward was given once they made contact with the syringe, (the reward was a peanut, raisin, or "petting zoo", a commercial food, by Mazuri®).

Next we added peanut butter to the end of the syringe, and let them approach it again, to lick the peanut butter off of the syringe. (At this time the peanut butter was the reward.)

The next step was to add Powerade® (a commercial drink product) to the syringe, and actually dispense the liquid from the syringe into the deer's mouth. Other liquids we used were applesauce, watered down peanut butter, and watered down honey. To simulate the bitterness of some medication, we sometimes added lemon juice to the mixture.

Our challenge was having two dominant deer that would not let the other less dominant deer approach the syringe. At this point two keepers would have to participate in the syringe training session. This enabled one keeper to focus on the two dominant deer, while another keeper worked with the three less dominant deer. Currently, all five deer are successfully syringe trained.



Keepers at Disney's Animal Kingdom have been working with their Axis deer to get them to accept liquids from a syringe, thus aiding in administering oral medications when required. Crate training is shown at below left.

Crate Training

We started crate training in hopes of reducing the stress to the animals from annual physicals. If we could get the deer to walk into the crate and allow the doors to be shut, the vets would then be allowed to do the necessary work without manual restraint.

Crate training was started by first introducing the crate to the deer. The crate was placed in the stall and covered with browse to camouflage it, so it would not appear to be so negative. The crate was left in the stall as a permanent fixture and the bottom was lined with hay to prevent slipping.

Next we started targeting the deer near the crate. When they got about 2-3 feet from the crate they were rewarded with one of their treats. As the deer became comfortable getting close to the crate, the distance was slowly reduced, by making them target closer to the crate.

Next we started putting special treats inside the crate, such as their preferred fruits and vegetables,



browse, and alfalfa hay. This would encourage them to put their heads inside the crate just enough to obtain the reward.

Once the deer seemed comfortable with putting their heads inside the crate, we decided to start targeting them through the crate. The deer were targeted near the crate and then rewarded. Next we would get the deer to station at one end of the crate to allow the keeper to go to the other end. The keeper would place the target inside the crate and the deer would be asked to target and then would be rewarded. Each time the target was moved closer to the keeper, so the deer would actually have to take a step up and into the crate, again they were rewarded for doing so. Eventually the target and the keeper were moved back far enough to allow the deer to walk completely through the crate.

Since crate training has just begun we have not introduced the doors yet. We hope to do this, simply by placing the doors against the crate for a few days. Then once a deer is inside the crate we can slowly place one door in place, giving the deer a reward. Eventually we can add the other door to the crate as well.

Currently, two out of the five deer are comfortable enough to enter the crate and walk through it, the others are interested enough to approach it during training sessions.

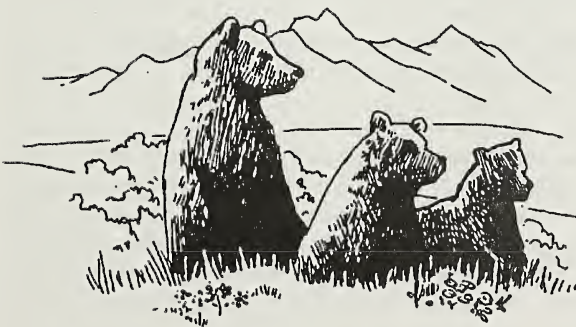
Bear Awareness Week Scheduled in June 2001

Defenders of Wildlife is holding an event known as "Bear Awareness Week" in the first week of June (3-9), this year (2001). They are trying to promote this event to recognize the bear as a striking symbol of wild nature and the importance of respecting biological diversity.

Over the years, bear populations have decreased significantly in the United States due to excessive hunting and destruction of their habitat. Negative impacts such as these occur as a result of human attitudes and negligence. Bear Awareness Week is an important vehicle for dispelling misconceptions and educating the public about the crucial role bears play in maintaining a stable balance in the ecosystem.

During this event, Defenders of Wildlife would like to raise awareness and educate the public regarding endangered bear species, especially the threat polar bears are facing in the Arctic National Wildlife Refuge in Alaska. They are urging zoos and libraries to participate by holding

exhibits and book displays and give away free cups and posters distributed by Defenders of Wildlife.



You can help them educate the public about this magnificent animal by recognizing the first week in June as Bear Awareness Week. If you have any questions you are asked to contact Roberta Pomponio at phone: (202) 682-9400 ext. 292, or e-mail: rpomponio@defenders.org.

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



Nepal Expands National Park to Protect Endangered Wildlife

In November 2000, the government of Nepal declared that it would expand the Royal Bardia National Park to provide additional protected areas for several species including tigers, rhinos and elephants. This expansion of the Park is undertaken in conjunction with the World Wildlife Fund, which is providing some of the financial backing for the project. "The extension to the Bardia National Park and buffer zone will help link 11 prime wildlife habitats in Nepal and India known as the Terai Arc," said Dr. Chandra Gurung, WWF Nepal Program country representative.

The Park contains one of the largest assemblages of large mammals in Asia including the densest population of tigers on Earth. Bengal tigers, greater one-horned rhinos, Asian elephants, and many other large mammals thrive in formal protected areas like the Park but their numbers are diminishing in the forests and flood plain habitats that lie between these reserves. WWF representatives say that if the reserves can be effectively linked by corridors of protected land, then the animals will have a much better chance for long-term survival in the wild. WWF and the government of Nepal continue to work on plans for local guardianship of buffer zones and hope that the new initiatives to protect the Terai Arc may eventually provide lasting safeguards for one of the most spectacular wildlands on Earth. *Source: WWF Focus Jan./Feb. 2001, vol. 23, no. 1*

Conservation Breeding Specialist Group Establishes Network in South Africa

The CBSG (an arm of the IUCN), working in conjunction with the Endangered Wildlife Trust, has established a regional CBSG in South Africa. The CBSG is one of the most active of the specialist groups of the IUCN Species Survival Commission and its mission is the conservation or establishment of viable populations of threatened wildlife through conservation breeding programs in conjunction with protection and management of plant and animal populations in the wild.

The CBSG has at its disposal tools to evaluate and integrate the interaction of biological, physical and social factors on the population dynamics of threatened species and to assist conservation bodies and institutions in the task of developing practical management plans to conserve these species. An example of the CBSG's work can be seen when it assisted the USA in conservation of the Florida panther, Pacific salmon populations and the blackfooted ferret. The CBSG has a broad-based membership including population biologists, behavioral biologists, reproductive biologists, geneticists, researchers, taxonomists, veterinarians, zoo directors and curators, government officials, sociologists and field biologists, and field biologists. All of these experts are involved in solving problems relating to the world's small wildlife populations.

Previously, the CBSC has set up regional networks in India, South Asia, Indonesia, Mexico, and Costa Rica. The new regional network in South Africa will be there to assist conservationists and governmental entities in providing training for local facilitators and to assist in running workshops and to investigate the possibilities of establishing Special Interest Groups such as those established by CBSC elsewhere. *Source: WildNet Africa Media Release Service 14 February 2001*

Zambia Attempts to Dismantle Safari Hunting Cartels

The Zambian government has issued a statement indicating that it intends to suspend all safari hunting registered companies from operating, except for one entity, with the intention of dismantling cartels in the safari hunting industry. According to the Zambian government, suspended companies had failed to submit audited accounts to the Zambia Wildlife Authority (Zawa) for purposes of evaluating technical team as required for hunting concessions.

The director of public relations for the Tourism Ministry responded to the cancellation action by saying that the Ministry had already submitted a list of Zambian registered safari companies to Zawa and that the list revealed that numerous directors and shareholders allegedly operated under different company names and duplicate hunting licenses. The Ministry spokesperson further stated that the country was “determined to ensure that only one company operated one hunting concession so that new competent Zambian companies were given an opportunity to participate.” If this were the case it would help to dismantle existing monopolies and cartels.

Finally, the Ministry and Zawa stated that in the future safari companies would be held accountable to the Zambia Revenue Authority in an attempt to make the companies account fully for their operations through the completion and submission of tax returns. *Source: WildNet Africa News Archive 7 February 2001 from article in the Times of Zambia newspaper*

Mozambique’s Wildlife Suffering Following South Africa’s Polluting Key Rivers

A senior environmental officer for the Environmental Affairs and Tourism Minister’s Office of Mozambique (EATM) has issued a report regarding claims that South Africa is polluting rivers that run through that country and into countries downstream. The report claims that there is evidence that Northern Province officials of South Africa have allowed local industries to pollute three rivers so severely that animals living in or near those water sources in Mozambique had increased numbers of deaths and birth defects in young.

The study has revealed that villagers relying on these three rivers for drinking water also suffer from serious kidney and stomach problems. Moreover, animals in four areas have developed serious physical defects, while crops and other vegetation near the rivers have died off.

The Mozambican government has also launched an investigation into the uncontrolled pollution two weeks after being notified of the study undertaken by the EATM and detected dangerous levels of pollutants in one of the rivers. *Source: WildNet Africa News Archive 9 February 2001 citing article in African Eye News Service*

Pretoria Agency Launches Campaign to Save Cape Leopard from Extinction

The University of Pretoria’s Wildlife Management Centre (WMC), in conjunction with various private and public agencies, has launched a plan to save the Cape leopard from extinction. In 1974 the leopard was formally designated a protected species and today the animal can only be hunted by obtaining a permit from local nature conservation authorities. However, this plan did not eliminate the age-old battle between the leopard and livestock farmers.

After an ecological study on the leopards of the Cedarberg and Clanwilliam areas of the Eastern Cape of South Africa were completed, it was determined that the most practical solution to the problem would be to instigate a leopard management policy for implementation within the confines of a designated leopard sanctuary. The sanctuary would be a selected area of land recognized to be a core area for an existing leopard population in which leopards are subject to minimal disturbance due to an exacting management policy by both farmers and conservation authorities. In the 1980s a single leopard sanctuary was established but more recent studies show that a single sanctuary is not sufficient to ensure the species survival. Therefore, the WMC has developed a plan to work with hunters and livestock farmers to trap the leopards instead of shooting them and then relocate the trapped animals to areas where they would not be problematic. The WMC, working under the approval of South Africa’s various conservation and ecological agencies, has also developed a method of providing

farmers with baited cage traps to prevent serious injury to the captured leopards – replacing the damaging foothold traps still being used on many farms. So far, the project has had its first triumphant capture which included radio collaring of the leopard occurred in October 2000 and hopes for continued successes have been expressed by the WMC and Pretoria's governmental officials. *Source: WildNet Africa News Archive 8 February 2001*

Angolan Government Funds Search for Giant Sable Antelope

Angolan wildlife authorities reported in late 2000 that over 25 giant sable antelope have been spotted during the 25-year long civil war ravaging the country. Most recently, two army helicopters were used in the search for these animals, which reside in the Cangandala area in the northern province of Malange. Local government authorities in Cangandala reportedly stated that they would invest \$5,000 (US) in an effort to protect the animals – whose habitat is being slowly eroded by continuing military conflicts and the encroachment of agricultural endeavors by Angolan citizens. *Source: WildNet Africa News Archive 9 February 2001*

Tahrs Offered Free Passage to India

The Office of Cape Town Tourism has offered to fund free passage for the Table Mountain tahrs to India in response to New Delhi's offer to save them and avoid extermination. Meanwhile, the Indian government has asked for an unequivocal undertaking that there will be no more killing of tahrs for two months until the practicalities of moving them to India are worked out.

Cape Town hopes to enlist the services of a commercial airline that flies from South Africa to India to secure free transport of the animals. The tahrs in question are the offspring of ones that escaped from the Rhodes Zoo in the 1930s and established a home on the mountain. The current population is estimated at between 60 and 100 animals. Local residents hunt the animals on the basis that they are damaging the mountain's flora. They are a highly endangered species in India and the Environmental Affairs Minister of India has stated that the South African specimens would be kept in a sanctuary.

Public outrage in both India and South Africa has contributed to the efforts of the two governments to find a solution to the problem before more of the animals are destroyed. A representative from the Indian Environmental Affairs Office stated that "The South African National Parks has not taken the moratorium on hunting seriously. The South African National Parks have their reasons but human damage on the mountain is having a far greater impact on the area's ecology than the tahrs ever could." In response, a senior investigator for the South African National Park's Office has stated that "We support a multi-pronged approach using netgun capture and tranquilizer darting to capture the tahrs. Now the budget can be spent on relocation, not extermination." *Source: Cape Argus Newspaper 2 March 2001 found at allAfrica.com News Service*

Ghana Embarks on Conservation Awareness Program

The director of Conservation International (CI) for Ghana, Africa has issued a press release stating that there has been a rapid decline in the numerous wildlife species in West and Central Africa over the last few decades. He attributes this to habitat degradation and virtually uncontrollable bushmeat trade, which he noted has reached crisis state as it is threatening to eliminate many species, most of which are primates. As an example, he pointed to the fact that Waldron's Red Colobus Monkey has been declared extinct in just the last few years.

To avert the immediate threats to the endangered species, CI-Ghana is adopting measures to organize a Stakeholders Meeting on Endangered Bushmeat to formulate strategies aimed at protecting the wildlife the country has up till now been blessed with. Moreover, CI-Ghana intends to begin a three-year national education and awareness program to address the issues of extinction and the impact of the bushmeat trade. A spokesperson for CI-Ghana stated that "the organization recognizes how to develop an implement an effective campaign strategy requires dialogue and a collective effort of all the major stakeholders associated with the bushmeat trade in Ghana". *Source: The Independent (Accra) Newspaper 13 February 2001 via allAfrica.com*

Safari Elephants Threatened by Zimbabwean War Veterans

Ten elephants specially trained to carry tourists on their backs for bush safaris in Zimbabwe are threatened by the ongoing land invasions by war veterans in that country. A South African game rancher has asked local conservation authorities for permission to give the elephants asylum on his farm in the Northern Province. However, his application has been opposed by local animal welfare groups who are demanding that the government first implement a national policy on elephant training before granting the rancher's request.

This would be the first elephant-back safari outfit in South Africa, although several local wildlife sanctuaries offer visitors interactive experiences with these animals. The deputy director of research at the Zimbabwean National Parks reportedly disagrees that the elephants are under threat from war veterans, saying that the country's government has guaranteed the security of wildlife within its borders. Meanwhile, the game rancher's application is currently being processed by the South African National Department of Environmental Affairs and Tourism. *Source: South African Mail & Guardian News 26 February 2001*

South African Town of Utrecht to Surround Itself with Game Park

The KwaZulu-Natal Province (South Africa) town of Utrecht is planning on surrounding itself with a game park to offset the closure of a coal mine which cost about 1,000 local jobs. The town's municipality started the first stage of the project three years ago by stocking the northeastern side of the town with several antelope species as well as larger game such as blue wildebeest and giraffe.

The second phase of the plan entails a community game farm where antelope will be culled regularly for meat and hides which will be made into biltong and leather products to be sold in a curio shop at the town's entrance. The farm will be viable within four years and the project has support from local farmers, the town's municipal government and from tribal authorities in that district. *Source: South African Times Newspaper 26 February 2001*

Despite Protests, Norwegian Wolf Hunt Continues

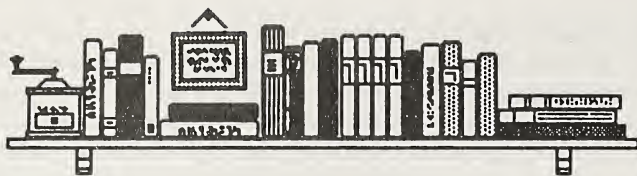
Although activists were able to thwart "at least one previous kill" because they were "near the line of fire," Norwegian hunters eventually "shot and killed the first of nine wolves marked for death" says an Associated Press report of 2/20. Conservation groups have failed to have the hunt blocked by the courts on grounds that it is illegal and the endangered wolves are a protected population.

Later the AP reported on 2/26 that government hunters in a helicopter shot and killed two more wolves in their "drive to eliminate the predators from a valley in southern Norway". In addition, activists in the area to disrupt the hunt were "attacked" by "four men" who set a "teepee" on fire and threatened them with knives.

Reuters reported on 3/20 that hunters in helicopters shot four more wolves over the weekend bringing to eight the number of wolves killed in the government cull and "leaving just one to be slaughtered". While hunters say that "fresh snow and sunshine" contributed to the "most successful two days since the hunt began," environmentalists are concerned that the wolf population remains "too fragile to withstand the cull." And then there was one. *Sources: GREENlines Issue # 1322 2/21/01, GREENlines Issue #1326 2-27-01, and GREENlines Issue #1341 3-20-01*

Town Outlaws Endangered Species

The town council of Virgin, Utah has passed an "ordinance outlawing the designation of endangered species within its borders" says the Christian Science Monitor 3/14. The desert town has also banned most environmentalists and prohibits the "recognition of any wetlands locally" as well as making it a "crime not to own a gun." *Source: GREENlines Issue #1339 3/16/01*



Book Review

Pythons of Australia A Natural History

By Geordie Torr Illustrations by Eleanor Torr

Krieger Publishing Co. 2000

P.O. Box 9542, Melbourne, FL 32902

103 pgs. softcover 34 color plates cost:\$24.95

Numerous B&W graphs and drawings

*Reviewed by Ken Naugher, Keeper
Sedgwick County Zoo, Wichita, KS*

This book covers Australian python history, anatomy & physiology, behavior, reproduction, feeding, conservation & management and captive care. The most useful sections of this book for a zoo professional cover the topics of behavior and reproductive life history. Almost half of the book is devoted to these two topics. Areas such as home range, thermoregulation, habitat use and spatial subdivision are presented in a detailed concise format while at the same time remaining interesting to read and brief. Much of this information has been published by R. Shine, D.J. Slip and others, however many of these references are difficult to find. A very impressive section with detailed accounts for 13 species is included at the end of the book. This section includes range maps, habitat and diet information as well as a physical description and natural history comments by the author.

The only real weakness with this book is the very brief and superficial information contained in some chapters. The section on captive care is particularly weak. One example is the recommendation by the author of treating snakes for mites by immersing them in oil, a very controversial and possibly deadly treatment for the snake. In my opinion, the target audience for this book would be the general public looking for a broad outline of Australian pythons presented in a simple and easy to read format.

Why Do Whales and Children Sing? A Guide to Listening in Nature

by David Dunn (includes full length CD)

EarthEar 2000, 45 Cougar Canyon, Santa Fe, NM 87505

*Reviewed by Amy Cutting, Senior Keeper
Seneca Park Zoo in Rochester, NY*

Despite the rhetorical question, this is not a discussion of the biological function of various sounds in the world, but rather a guide to active listening in nature and a sampler of sounds on which to practice. The author explains that the work is intended more as art than science, but he sprinkles his essays with interesting tidbits about the fetal sound experience, the evolution of hearing and a powerful conservation message. The theme running throughout the book is that the complexity, changes in tone and intensity of sounds through time are symbolic of the diversity of life.

Since most of us are familiar with the sounds of nature only as a background for Yanni or as a New Age meditation tool, the recordings (or "soundscapes") are refreshing. While the animal person in me is disappointed not to hear dolphin echolocation, hippo sounds and vervet monkey alarm calls, the variety of environments represented effectively elicits the wonder I believe the author is trying to inspire. There is a wide assortment, from rainstorms to insects, birds and the occasional mammal (including humans). The underwater walrus sounds are particularly interesting, as is the frantic whirring of a hummingbird's wings. Several tracks from a cavern filled with bats are a compelling example of how sounds change throughout the day at a single location. The last few sounds are recordings of

humans in context. That is to say they blend the sounds of humans, whether natural or technological, with those of the environment to the extent that it is not clear which sound is background for the other.

In creating a thoughtful and intent listener by the end of the CD, the author effectively prepares his audience to receive a valuable conservation message – since humans are not primarily auditory creatures, we have a tendency to neglect the impact our sound generation has on the natural environment. Animals who use sounds to communicate or whose hearing is significantly more sensitive than ours may experience as much disruption from these changes in the aural world as they do from habitat destruction.

As a keeper, the book served as an important reminder for me of how complex the auditory world of our animals would be in the wild. As we try to understand animals in the context of their traditional environments, sound recordings may help us to grasp what their perceptual world might be like, especially for those who utilize hearing as their primary sense. I listened to the CD with my cats and dog and was struck by how few of the sounds elicited a response. Only the wolves and howler monkey recordings got their attention in any way. I forget that in my home they are constantly bombarded with sounds from television and radio and have become almost completely desensitized to anything less salient than the doorbell.

We must work to provide complexity in the aural environment for many of the animals we care for if we hope to approximate their natural world. I look forward to playing the accompanying CD to our bears, sea lions and penguins. For a scientific treatment of hearing, sound and auditory communication, one should look elsewhere. For a compelling introduction to the often underestimated auditory world (and a nifty CD for animal enrichment) this will do nicely.

Despite Congo War, Mountain Gorilla Population Grows

In a recent press release by the African Wildlife Foundation, the Worldwide Fund for Nature, and Fauna and Flora International, it was noted that the world's largest population of Mountain gorillas (*Gorilla g. berengei*) has managed to increase its numbers despite almost continuous warfare in their natural habitat. The number of gorillas now residing in the Virguna chain of volcanoes, a area which straddles Rwanda, Uganda and the Democratic Republic of Congo, now stands at 355, up from 320 in 1989. A second group found in the Bwindi Impenetrable Forest of Uganda is believed to number about 300 individuals. Monitoring data was provided by the International Gorilla conservation Programme (IGCP) and the Dian Fossey Gorilla Fund-International (DFGF-I). The gorillas have been endangered by the continuing armed conflict in which 15 gorillas were known to have died as a direct consequence of the war. Militia movements through the forest areas have also had a negative impact of the gorillas' habitat.

"This success proves that even in a region where everyone has focused on the conflict and crises, there is hope," said IGCP Director Annette Lanjouw in Nairobi. "There is a future for both people and wildlife when people work together despite political differences." Conservationists stated that the population increase was due in large part to the sheer dedication of field staff whose work has limited damage to the gorillas' habitats.

Countries involved in the ongoing conflict are Uganda, Rwanda, Republic of Congo and their allies Zimbabwe, Angola and Namibia.

--excerpted in part from Reuters news release and from online resources at AllAfrica.com

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\$35.00	\$28.00	<u>The Sibley Guide to Birds</u> - David Allen Sibley - This 544-page guide is sure to become an indispensable reference tool for the identification and understanding of North American birds. Flexibound, full-color illustrations.
\$35.00	\$28.00	<u>The Smile of a Dolphin</u> - Marc Bekoff - Accounts from over 50 researchers who have spent their careers observing a great variety of animals, featuring 120 photographs dealing with animal emotions. 244 pgs. hardcover.
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\$26.00	\$20.80	<u>Ocean's End</u> - Collin Woodard - This book confronts the major environmental problem of our times: the fate of the ocean. 320 pgs. hardcover, B&W maps.
\$19.98	\$15.98	<u>The Audubon Backyard Birdwatcher</u> - Robert Brton, Stephen Kress - Discover how to create a backyard bird sanctuary, photographic guide included. 400 pgs. hardcover.
\$35.00	\$28.00	<u>Secret Worlds</u> - Stephen Dalton - This is a collection of over 125 photographs which explore the microcosmic worlds that surround us. 160 pgs. hardcover.
\$14.95	\$11.96	<u>Snakes</u> - Peter Stafford - Illustrated with more than 130 color photographs, this book describes the biology and natural history of snakes. Also details habitats, conservation status, markings and unusual behaviors. 112 pgs. paper.
\$40.00	\$32.00	<u>Mammals of North America</u> - Adrian Forsyth - This book goes beyond simple description and identification and delves into the reasons wild mammals live the way they do. 352 pgs. hardcover.
\$11.95	\$9.56	<u>Nuts About Squirrels: A Guide to Coexisting...</u> - Richard E. Mallery - This light-hearted book gives readers a peek into the entertaining world of squirrels. 192 pgs, paper, B&W illustrations.
\$19.95	\$15.96	<u>Plants for All Seasons</u> - Andrew Lawson - The ultimate guide to creating every gardener's Eden. 168 pgs. paper.

To Order: List the items you are ordering along with your name and complete mailing address. Include a shipping fee of \$3.00 for the first item and \$2.00 for each additional item. Checks payable to: "AAZK Book Sale" (U.S. Funds Only - No Cash or COD's, please). Outside the continental United States please call, write, e-mail, or fax your request before sending any money; we will help to find the best form of shipment and lowest shipping fees.

Mail requests to: AAZK Beardsley Chapter, Attn: Linda Tomas, 1875 Noble Ave., Bridgeport, CT

International Enrichment Conference 2001

The 5th International Conference on Environmental Enrichment is being hosted by the Taronga Zoo in Sydney, Australia from 4 to 9 November 2001. The conference will be held at the ANZ Conservation Lecture Theatre at the Taronga Zoo. This new theatre is an exciting conference venue sporting a view across the zoo and Sydney harbor. The conference theme is: Making Enrichment a 21st Century Priority. As the theme states, the focus for this conference is to make environmental enrichment a priority in our zoological institutions. This will be done by discussing all aspects of animal behavior in captivity—thus promoting an interchange of ideas between researchers and zoo staff—by showcasing enrichment initiatives as a stimulus to our own practices, and by looking for ways to incorporate enrichment more effectively into our operations. The program will consist of oral papers, forum discussions, workshops, and poster presentations planned around visits into the zoo for displays of enrichment in action.

The conference will end with a plenary planning session. Suggested session topics:

- Linking enrichment theory and practice
- Making enrichment a key husbandry activity
- Measuring the psychological well-being of animals
- The under-enriched taxons: Marsupial, Avian, Herpetofauna
- Enrichment in off-exhibit areas
- Innovative enrichment initiatives
- Conditioning and training as enrichment
- Enrichment and the zoo visitor.

A conference page has been added to the Taronga Zoo website (www.zoo.nsw.gov.au). On-line registration and abstract submissions will be available and the site will be updated regularly through 2001. This page is hotlinked from the conference pages of *The Shape of Enrichment* website (www.enrichment.org).

For more information, contact Margaret Hawkins, Behavioural Biologist at: Taronga Zoo, P.O. Box 20, Mosman, NSW 2088, Australia; e-mail: mhawkins@zoo.nsw.gov.au; telephone: +61 29978 4615; fax: +61 29978 4613.

Once again, The Shape of Enrichment, Inc. is offering \$1,000 to the winner of our Enrichment Grant Contest. Papers relating to enrichment ideas, theories, and practicalities are judged by a panel of enrichment specialists. The author of the winning paper is invited to present the paper at the International Enrichment Conference and awarded \$1,000 to be used toward conference expenses.

The deadline for submitting your paper(s) is **20 April 2001**. More information and an official application form can be found on *The Shape of Enrichment* website. Good luck to you all, and I hope to see you in Australia! ---Valerie Hare, Co-Editor, *The Shape of Enrichment, Inc.*

Information Please

We're looking for information on introducing a new male oryx, specifically scimitar-horned, to an established oryx herd in a mixed-species exhibit. Interested in all successes and failures. Want information such as age of new male, age of herd members, reproductive status, introduction period/method, long-term effects, time of year, etc. We're changing males to introduce a new bloodline and have some flexibility as to how and when we do it. Trying to find the least traumatic method.

Please send any and all information to: Mikael Michault, Hoofstock Keeper, Branfere Animal and

The Water Column

By

Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium

Have you ever stopped to think what really happens to animal waste in the water of our captive charges? First consider what that waste is. It's essentially excess nitrogen from food protein that the animal's body didn't use. This sounds harmless enough but for fish it can be lethal. Fortunately, nature has an ingenious method known as the nitrogen cycle for converting this dangerous waste to safer substances.

Fish excrete this waste as ammonia and it can accumulate to toxic levels in the water if unchecked. There are a number of beneficial bacteria that take care of this. For decades aquarium literature has mentioned bacteria of the genera *Nitrosomonas* and *Nitrobacter* as being responsible for converting this ammonia to less toxic substances. There are other bacteria also capable of this process and they are mentioned in more recent literature so I won't give all the credit to just these two genera but the most important thing to understand is that aquariums don't work without the help of bacteria. Ammonia from fish waste is very toxic to fish even at very low levels. Other aquatic/marine life is also susceptible at varying levels. To emphasize this point, a drop of household ammonia in a five-gallon bucket of water would certainly spell disaster for most fish. However a few small fish in five gallons of water would not produce nearly the same concentration but would still be progressively stressed and eventually killed by their own ammonia given enough time. This example is vague because of the obvious variables of fish biomass and time. There is also the relative toxicity of ammonia to consider. Ammonia varies in toxicity with changes in pH and to a lesser extent, temperature. The lower the pH (more acidic) and temperature, the less toxic ammonia is to fish. This becomes important when testing for ammonia levels to determine what the danger and/or margin of safety is. There are tables in the aquarium literature which account for pH and temperature and allow one to calculate the unionized or toxic levels of ammonia. Briefly, unionized ammonia is NH_3 while ionized ammonia (virtually non-toxic) is NH_4^+ . Notice here that a more acidic pH leads to more ionized ammonia due to more free hydrogen (see last month's explanation on pH) hence the lower toxicity at lower pH.

Regardless of the ratio of unionized to ionized ammonia present it is all converted to nitrite (NO_2^-). Keep in mind that bacteria are responsible for this conversion. Nitrite can be toxic to fish but is somewhat less toxic than ammonia especially in seawater. As a matter of fact, adding a little salt can be used to combat nitrite poisoning in freshwater systems as long as the particular species being treated can tolerate some salt. It is the chloride component (chloride ion) in salt (e.g. sodium chloride) that makes this possible.

Nitrite is then converted to Nitrate (NO_3^-) by a different set of bacteria. Nitrate is substantially less toxic to fish than nitrite. Levels of 250-350 ppm are considered acceptable throughout much of the aquarium industry and much higher levels have been reported at some aquariums. In most systems it takes months or years to accumulate these high levels of nitrates. It is not uncommon for nitrates to be the end of the nitrogen cycle in most closed systems. However there is one more conversion possible.

Plants including algae consume nitrates but there are more practical ways to remove nitrates and

complete the cycle in captive systems. Yet another set of bacteria can convert nitrates into atmospheric nitrogen (N₂) under the right conditions. The ammonia to nitrite, nitrite to nitrate conversions were carried out under aerobic (oxygen present) conditions. The final conversion of nitrates to atmospheric nitrogen takes place under anaerobic (oxygen absent) conditions. So the bacteria that do this can only do it in the absence of oxygen. This is why most systems with standard filtration are unable to remove nitrates. Some facilities have equipped some of their larger systems with additional specially designed filters that basically provide the necessary conditions for the bacteria to convert nitrates to nitrogen. Systems or exhibits that have relatively deep undisturbed substrates often have the unintended effect of providing the necessary anaerobic conditions to accomplish the nitrate to nitrogen conversion.

Typically it takes a few weeks for a newly setup system to grow a large enough population of bacteria to carry out these conversions. Warmer water, more oxygen, and ideal pH tend to favor faster population growth. However, cultures of bacteria can be purchased from aquaculture suppliers and added to a new system to help speed up the process. Ammonium chloride and maybe some sodium nitrite can also be added before fish to mimic the effect of a waste producing bioload. This is a good way to "cycle" the tank ahead of time and avoid stressing the animals with ammonia and nitrites. Finally the design of the system's biological filtration can make a significant impact on the establishment and success of the nitrogen cycle and it will be discussed in the later in the series.

Each month we will also be answering a few questions from you. We will try to pick questions that are pertinent to that month's topic. We also welcome feedback from the readers. Questions and comments can be submitted to us by email at: Dan: dconklin@flaquarium.org/ Kevin: kshelton@flaquarium.org/ Bruce: belkins@indyzoo.com/ Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602

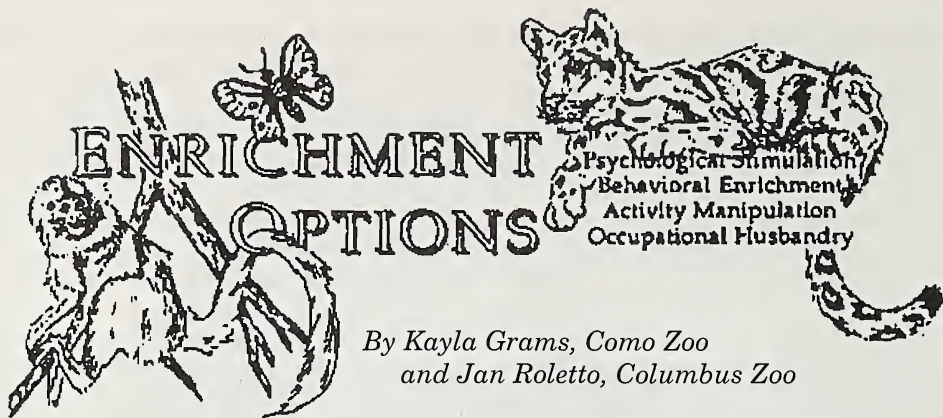
Information Please

"Our lactating wild caught (white rhino) female is approximately 16 years old, calf currently 8 months old, still regularly suckling. Since she has been with us (arrived late 1999 from the kruger) she has had three episodes of extreme lethargy and low energy, culminating in actual tremors, almost like she has Parkinsons. The first was when she was still pregnant (Dec 99), the second about a month and a half ago, and she is just going into a third. The condition presents with a couple of days of starting to slow down, not lifting her feet properly, slow to respond to calls. Then she gets very uncoordinated, she can't move around without stumbling and her head nods a bit. I think this is due to no energy, rather than actual neurological or visual probs. We have assumed and treated it (for lack of any other ideas) as a nutritional problem - given her thiamine, vit E and molasses. The meadow hay we have in at the moment is quite low quality (we have moved her on to a better grade), but she also gets a reasonable (about 3 biscuits) amount of high quality lucerne (alfalfa) per day. Possibly this could be a trace mineral deficiency? Although we have done a hay analysis and nothing was that obvious to our vet. No other animals have shown any probs at all, if anything they're a bit fat. The affected female is weighed regularly and her weight has remained constant (1685 kg) over the past few months. Her condition looks fine.

"If anyone has any suggestions or comments about this, I would really appreciate some advice. I would also appreciate some baseline values for grass hay testing nutritional levels (incl. trace minerals) - do your zoos do regular checks on hay feeds before they are delivered, and what are your nutritional guidelines for acceptance or rejection of hay?"

The suggestions can be e-mailed to me at joseruiz@compuserve.com or mailed to the address below.

Jose Ruiz, West Michigan AAZK Chapter, P.O. Box 344, Jenison, MI 49429 (616) 669-1771
joseruiz@compuserve.com



*By Kayla Grams, Como Zoo
and Jan Roletto, Columbus Zoo*

CATS: A “hoofed animal” was created by using paper maché for the tigers to use as a mock kill to exercise natural predation instinct. A life-size animal was created, filled with venison meat and scented with the prey’s urine. The animal was immediately stalked and engulfed.

Venison enclosed in a burlap bag was hung from a pre-existing suspension hook eight feet in the air. The tiger was able to exercise its natural predatory behaviors by holding the bag in a death grip before forcefully pulling it down. For the African lions, that lacked such an apparatus, venison was simply enclosed in the burlap bags and placed strategically throughout the exhibit. This provided the lions with hours of enrichment, for they had difficulty ripping the bags open.

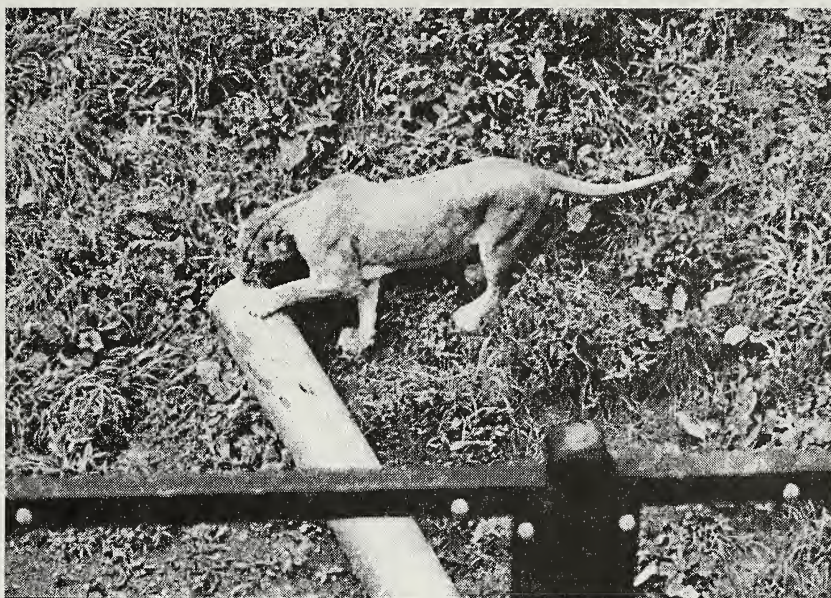
Various scents were placed around the lion exhibit to provide for sensory enrichment and encourage natural marking behavior. Bison, domestic canine and feline hair were used.

A cardboard cylinder once used for carpet was smeared with donkey dung which initiated pouncing behavior used to capture prey. The cylinder also served as a sturdy scratching post which took weeks for the lions to completely destroy.

Venison and blood was frozen in five-gallon buckets offering a simple, and tasty summer’s day treat. These blood balls were consumed quickly, while simultaneously serving as a “cooling” toy!



Tiger attacks a venison-filled burlap bag which was hung eight feet off the ground in its exhibit.
(Photos provided by the authors)



A lioness attacks a large cardboard cylinder which has been smeared with donkey dung.

PRIMATES: To improve mobility for the monkeys that would closely imitate their natural environment, fire hose and bungee cords were placed in the exhibit to serve as swinging and climbing apparatus. A hammock, which was constructed using fire hose, was frequently used for grooming sessions and nesting.

To provide a non-mundane way of obtaining food, and to encourage foraging behavior, we created a "grab bag" using a burlap sack, hay and rope. This was filled with hay and various fresh and dehydrated fruits and vegetables and suspended horizontally from freely moving exhibit furniture. The bag was closely woven at the opening and small holes were cut on the surface to increase difficulty in obtaining the food.

The Spider monkeys' intelligence was exhibited when they were given large frozen fruit treats. The monkeys would climb to a tall beam and drop the treat ten feet to the ground for the purpose of breaking it into edible bits. When unsuccessful in their first attempts, they would repeat the activity, eventually being rewarded with their now small, tasty treat.

A large cardboard cylinder was also suspended from two adjacent exhibit trees to serve as a hiding and sleeping facility for the primates.

For the mongoose lemurs, a burlap 'grab bag' was constructed as was used with the Spider monkeys. This allotted for foraging behavior.

FOX: Mackerel fish were scattered throughout the exhibit forcing the foxes to use their keen sense of smell to locate their treat. Along with the Mackerel fish, frozen salmon cubes were provided on the hot days to offer an escape from heat.

Like many other animals, a natural browse was provided for them to use as shade but to our surprise the browse turned into a hiding area for the fox to place its newly killed meal, a baby bird.

PORCUPINES: The often overlooked porcupines were more than happy with their scattered dehydrated fruit, scurrying throughout their exhibit in competition to get the tasty treats.

A functional and aesthetic enrichment was to place natural reindeer antlers and logs within the exhibit to provide gnawing behavior with materials they would typically have access to in the wild.

Enrichment implemented by Zoo Interns Katya Woloschko and Rebecca Harry. As students of Michigan State University they were able to obtain experience as interns in the zoo science field working particularly in environmental enrichment for Potter Park Zoo's animal collection. They designed and implemented a variety of enrichment activities which provided physical, social, mental and sensory stimulation for the zoo's animals.

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

Visit the AAZK Enrichment Website - www.enrich.org/aazk or
to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich

ATTENTION ARTISTS ! !

Deadline Extended To Submit Your Artwork!

****Enrichment Options ART Contest****

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!!

The logo should be **Crisp, black and white, and clear!**
Note the size in the *Animal Keepers' Forum*. The logo should be no larger then it.
You may include the Enrichment Options title into the picture, or without.
Submissions should be black pen and ink for better quality.

Deadline for submissions is July 1, 2001. Be creative. You can send your submissions to the AAZK Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn: Enrichment Options Art Contest

Point Defiance Zoo & Aquarium Chapter

The Point Defiance Zoo & Aquarium Chapter of AAZK is pleased to announce officers for 2001:

President.....Paul Povey
Vice President.....Traci Belting
Secretary.....Stacy Luhning
Treasurer.....Shannon Smith

This past year saw the formation of the Clouded Leopard Project. The project was conceived by our Chapter and with the help of our Zoo Society was able to launch a long-term fundraising effort to benefit clouded leopard research. We are now happy to be able to offer t-shirts on the web (www.cloudedleopard.org) and in our zoo's gift shop. The initial grant of funds was awarded at the end of 2000. The first recipient was Lon Grassman, a doctoral candidate doing field research in Thailand.

Our Fourth Annual Photo Booth in conjunction with our zoo's Zoolights holiday promotion was a complete success. The funds generated from this month-long effort are used for our zoo's library, keeper education and many deserving conservation organizations.

Our Chapter is looking forward to 2001 with great anticipation. The community of Tacoma, WA has passed two ballot measures recently that will enable our facility to provide a better zoo experience.



This, in turn, will strengthen our Chapter's commitment to furthering keeper education through conference attendance, exchange programs, and internships.

—Paul Povey, President

Chapter News Notes

Rio Grande AAZK Chapter

Newly elected officers for the Rio Grande AAZK Chapter, Albuquerque, NM are:

President.....Shelly Lindsay
Vice President.....Amber Saunders
Secretary.....Grechen Bass
Treasurer.....Catalina Parker



Seneca Park Zoo Chapter

The Seneca Park Zoo Chapter in Rochester, NY had a very successful first year! We have chosen a logo, designed by Scott English, and have been active in fundraising. The First Annual Animal Art Expo, featuring paintings by elephants, penguins, boas and beaded lizards raised \$1200.00. Our Second Annual Enrichment Garage Sale was a big success, raising over \$2000.00 earmarked exclusively for animal enrichment needs. The associated Enrichment Awareness Day, hosted by our Docents, was also a hit. Our Zoo has participated in Bowing for Rhinos for the past five years and this year the Chapter raised \$1800.00 to bring our five-year total to over \$10,000.00!

Chapter President Kara Masachi spent two weeks in South Africa cleaning up penguins affected by the oil spill and the Chapter sent \$300.00 to the

International Fund for Animal Welfare (IFAW) to help with project costs.

Elections were held recently and new Chapter officers are:

President.....Kara Masachi
Vice President.....Sue DeFalco
Secretary.....Tracy Zlotkus
Treasurer.....Tina Fess
Chapter Liaison.....Amy Cutting

submitted by Amy Cutting, Chapter Liaison

Dallas Zoo AAZK Chapter

The Dallas Zoo AAZK Chapter recently voted to send \$500.00 to support the AAZK, Inc. Endowment Fund. We raised \$298.00 from the garage sale and took the rest from the general fund.

Recycling brought in \$350.00. The money has been set aside until the recycling committee makes a decision on purchasing new recycling cans for us.

We also sent \$254.00 to Bongo in the Congo, but the check was never cashed. So we used this money to adopt two hornbill nests and sent the rest to ARCAS (a Guatemalan animal rescue program).

We have a \$626.00 profit from the sale of candy bars and this money will go towards conservation.



Newly elected officers for the Dallas Chapter are:

President.....Jeanette Boylan
Vice President.....Bonnie Hendrickson
Secretary.....Jennifer H. Williams
Treasurer.....Leanne Othen
Liaison..... Randi Bolton

submitted by Randi Bolton, Liaison



The Greater Houston Chapter

The Greater Houston Chapter is made up of members from the Houston Zoological Gardens and Moody Gardens in Galveston. The Chapter has recently adopted a new logo and our officers for 2001 are:

President.....Jon Meyers
Vice President.....Carolyn Matthews
Secretary.....Kelly Russo
Treasurer.....Julie Acker
Chapter Liaison.....Lisa Marie Avendano
Moody Liaison.....Heather Leeson

What's Your Chapter Been Up To?

Do you have new officers? A successful fundraiser? A new logo? Be sure and send in your latest Chapter News to share with the AAZK membership. We want to hear about all the great activities and projects you are involved with, including conservation efforts and professional development.

Irradicating Baldness and Pacing in Two Captive Andean Bears

*By Else Poulsen, Senior Keeper, Calgary Zoo
and Elaine Willms, Keeper, Calgary Zoo*

The Calgary Zoo currently houses 1.1 Andean bear (*Tremarctos ornatus*). Like so many other zoos in North America these bears were suffering from patchy baldness and chronic pacing. An eight-month study period was set up to reassess the effectiveness of the current husbandry techniques, and to make appropriate changes to benefit the bears' well-being. The project spanned over the four seasons in Calgary, thus seasonal husbandry changes were incorporated.

At the onset of the study the bears exhibited the following problems.

Problems Exhibited by Melanka and Nicholas at the Onset of the Study

1.1 Andean bear, Melanka

1. chronic, massive fur loss,
2. periodic excessive scratching,
3. chronic pacing,
4. excessively shy, retiring behaviors,
5. unresponsive to keeper staff, and environment.

1.0 Andean bear, Nicholas

1. chronic pacing,
2. periodic scratching bouts, and slight fur loss,
3. aggressive towards keepers, slapping paws against mesh at zoo keepers, grabbing the dish from keeper's hands, seems to be 'starved' at mealtime,
4. tense, nervous, easily angered, distrustful of keeper staff,
5. initially unresponsive to keeper staff and his environment.

We took an holistic approach towards problem solving believing that stressors in their environment could cause behavioral and physiological problems for the bears (Stoskopf, M.K., 1983). This included the keeper's relationship with the bears, the status of conditioning, enclosure design, environmental concerns such as temperature, the history and appropriateness of diet offered, and enrichment programming. We thought of those eight months as a period of discovery. The idea was to remain flexible to change so as to be responsive to the bears' needs. Much time was spent observing, reassessing, mulling over, planning, and taking notes. Problem behaviors were recorded on video, scored, and incidences assessed.

The good news is that by completely renovating husbandry practices we were able to successfully treat their problems. The first major change that occurred at the onset of the study was that Melanka was moved away from Nicholas into another enclosure. There is some question in the zoo community as to whether or not males and females should live together or in the vicinity of each other year round. It is difficult to say which change had the most impact on which problem. It is likely the total combination of changes that resolved the problems.

Results of the Husbandry Changes

1.1 Andean Bear, Melanka

1. her fur grew back,
2. her scratching bouts appeared to be less frequent,
3. she exhibited 0% pacing, even when locked out onto exhibit,
4. she became comfortable with people around, and sought out human contact,
5. she became responsive to keeper staff, and was alert to her environment.

1.0 Andean Bear, Nicholas

1. could exhibit 0% pacing, even when locked out onto display,
2. his scratching bouts disappeared,
3. his aggression towards keeper staff stopped, no longer 'starving' at mealtime,
4. he became relaxed and trustful of keeper staff,
5. he became responsive to keeper staff, and alert to his environment.

The changes made simply amounted to applying modern husbandry technique to the bears. It worked! Currently the evolution of bear husbandry is taking the same path as the evolution of ape husbandry. It was not that many years ago that gorillas were held alone or in pairs in small tiled enclosures without a complex environment. Aberrant behaviors were commonplace in such facilities. Zoo management realized that they must spend money, and allow their staff to spend time on properly housing these animals if they were ever to display, breed, and raise mentally and physically healthy apes. This is currently happening to bear husbandry. All aspects of caring for bears is being questioned and discussed. In short, bears need the attention of their keepers and their managers!

Keeper/Bear Relationship and Conditioning

At the onset of this study the keeper/bear relationship was poor and conditioning was lacking. A trusting relationship is the foundation upon which a healthy environment is built. When the study began both Nicholas and Melanka did not respond to the keeper calling their names. Both appeared glassy-eyed and not alert to their environment. Nicholas was overly aggressive and Melanka was overly withdrawn.

The first step was to create a calm working environment around our meetings. Spending time with the bears, using a calm and quiet voice while feeding the bears, frequently using their names, not allowing any sudden movements or loud noises around the bears and maintaining an association with positive activities and experiences helps to build a positive and healthy relationship with the bears. (Winhall, W., 2000).

Since the bears would not initially respond to the keepers, we would give them treats just to make friends. They were rewarded for simply looking in the keeper's direction. Next they were rewarded for coming over to the keeper when called. Then they were rewarded for following the zookeeper. These behaviors lay the groundwork for building a modern husbandry routine.

The next important item on the training agenda was to rid Nicholas of his aggressive habits.

He would slam the bars, paw at the keeper, or try to grab the feed dish in the keeper's hands if he were nervous, angry, or wanted to take control. These took a bit of work. Nicholas did not give up his pranks easily. The same technique was used for all three problems. The keeper would respond with stern "No!", and then remove herself from the area. It took two weeks before Nicholas was finally convinced of the keeper's resolve on these behaviors.

From there Nicholas went on to learn not to present paws, to present paws, to station for scratches, to present his nose, and the difference between being called for an indoor or outdoor feeding. These behaviors were to be used as "bridges" to accommodate veterinary work.

It soon became apparent that Nicholas looked forward to the training/bonding sessions. He would solicit a session by doing any of his commands without being asked. The result was that Nicholas calmed down, no longer behaved as if he were starving at mealtime, stopped showing aggression towards keeper and volunteer staff, and no longer seemed anxious.

Melanka also learned the commands and seemed to benefit from the sessions in a different way than Nicholas. She is a shy, retiring animal that needs to feel that she is in a safe environment in which to act. She became so outgoing that she would come and sit in front of a group of strangers in the back area and solicit human attention. Keepers who had worked with her previously could not believe that this was the same animal.

Wild and Captive Habitats

In captivity, zoos have historically taken advantage of the fact that Andean bears are adaptable to cold, often forcing them to over winter in extreme temperatures. If the bear did not succumb to the cold, it was assumed that this was satisfactory. Old husbandry dictated that you did not allow your bear to be subjected to temperature extremes and let it acclimate to the cold. While this works well for North American bears in North America, it does not work for tropical bears. Today many facilities are taking a more personal approach to the problem. If you have a bear suffering from fur loss then you house that animal in a warmer climate. It makes sense to find an optimum temperature right for individuals, rather than test the limits of that specie's temperature range.

This is the approach that we used with both Nicholas and Melanka. The temperatures in the bears' buildings were set between 18-20°C (64-68°F) in the winter. This turned out to be a huge success. Historically the temperatures have been set at 10°C (50°F) for the winter. Often the building grew colder than that when the outside temperatures fell below -25°C (-13°F) for days at a time, and the old furnace could not keep up. Under these conditions the bear curled up on the platform to conserve their body heat, and rarely ventured outside or even moved. This meant that they were most often off-display. When we increased their indoor temperatures we found that they became more active and would go outside on display for a longer duration. They would even play in the snow, with the promise of being able to come indoors at will and warm up. They became frisky, interactive with the keeper, and hungry...in other words they came back to life!

The western Canadian prairies do not have the humidity level of the Andean cloud forest which is the bears' wild habitat. Melanka and Nicholas both scratch year-round. The incidence improves greatly at times and at others it seems excessive. Some zoos that lie in coastal

areas and have high humidity levels also report scratching in their Andean bears. Renovations made to the bear building included a new furnace with humidity. Even if the scratching incidence is not related to humidity, increasing the buildings humidity levels certainly cannot hurt the situation.

The daylight cycle in the Andean countries is longer than in Calgary, Alberta during the winter. On average they enjoy 12 hours light per day throughout most of the year. To remedy that problem in Calgary, We left the lights on in the Melanka's building for 12 hours to mimic their natural state. We observed that if the lights were left on until later in the evening Melanka stayed active taking part in enrichment left by the keeper. Otherwise she would be forced into inactivity. Photoperiod may play a more important role for the captive Andean bear than originally thought as they are quite nocturnal in their wild habits (Weinhardt, D., 1993).

The bear building was renovated to include sleeping boxes high off the ground with 12-inch lips to accommodate bedding materials. We recommend that the outside enclosure be altered to accommodate the bears' needs. About 33% of the outside exhibit is not used by the bears because it is a field of boulders meant to simulate mountains. These must be removed to give the bears access to the only shade in the exhibit. Also the climbing structure needs to be replaced. Currently the structure allows the bears to walk from tree to tree on planks at high elevations. A small, female bear like Melanka cannot protect herself from a bear coming at her from the top of another tree. She can protect her tree from intruders if they have to climb up from the bottom. Thus more single standing trees need to be erected, and the old structure must be removed. The use of hammock beds should continue since they are terrific for arboreal bears.

Diet

More and more data from the wild suggests that these elusive bears are largely vegetarian, eating meat only on an incidental basis (Peyton, B., 1991 and Paisley, S., 2000). Zoos have historically fed all their bear species the same diet despite the fact that there are members on both ends of the omnivore spectrum in the family...polar bears being almost exclusively carnivorous and Andean bears being largely vegetarian. Research over the last decade has shown that high protein levels in the diets of laboratory and domestic animals, and in humans may cause stress responses such as irritability, anxiety, and depression. It may also cause aggressive behavior and cancer. Zoos are taking notice of this since large numbers of our bears suffer from behavior problems.

At the onset of this study Nicholas and Melanka were given only four items in their diet which included: high protein dog chow, apples, carrots, and popcorn. In defense of this sparse diet it must be noted that at the time it was thought that the bears might have food allergies causing their fur loss and scratching.

Fur loss and scratching in captive bears is common place. It is interesting to note that the two do not always appear together and at times appear not to be related. For instance, when Melanka's fur grew back during the study she still showed signs of periodic excessive scratching behavior (Willms, E., 2000). Discussion with staff from a dozen zoos in North America produced the following observations: fur loss without scratching or allergies, fur loss and scratching that occur in one animal but appear at different times and seem unrelated,

testing that shows no sign of allergies, unsuccessful use of antihistamines, steroids, and hormone injections, and one hyperthyroidism diagnosis that could not be substantiated. However, our work and other published sources report the successful treatment of fur loss by introducing a varied and enriching diet (Zerpa, D.A., 1991, Pernalete, J.M., 1998, and Willms, E., 2000). It is possible that some nutrient is missing or is in short supply in simple diets, but is available in appropriate quantity in a varied diet. Or it is possible that a varied and enriching diet in conjunction with other modern husbandry techniques is offering an holistic solution.

Melanka and Nicholas were put on a varied diet that included enrichment feedings of largely vegetarian matter. Both animals had weight gain problems at the onset of the study. We found that as the variability and personal choice increased their weight decreased to acceptable levels. Animals that eat the same few items day after day tend to eat in a rote manner and are likely unaware of feeling satiated. The consumption of meat proteins decreased as the consumption of vegetative matter increased. The stool appearance improved from a normally poorly formed consistency to a firmer, well-formed mass. It is believed that introduction of browse into the diet was to a large extent responsible for the stool improvement (see Table 1).

TABLE 1: FOOD ITEMS USED FOR ANDEAN BEAR ENRICHMENT DIET

FRUITS	DRIED FRUIT	VEGETABLES	MEAT	OTHER
Apple	Apricot	Beets	Chicken	Bread
Apricot	Dates	Carrots	Herring	Cereal
Banana	Fig	Cauliflower	Rabbit	Dog chow
Grapefruit	Papaya	Cucumber	Rat	Fruit leather
Grape	Prune	Eggplant	Salmon	Ginger root
Guava	Raisin	Lettuce	Smelt	Lemon grass
Honeydew melon		Parsnip	Trout	Milk bone
Kiwi		Potato	Tuna	Oatmeal
Lemon		Yams		Popcorn
Lime				Poplar browse
Nectarine				Veggie dog treat
Orange				Willow browse
Papaya				Yogurt
Peach			INSECTS	
Pear			Crickets	
Persimmon			Mealworms	
Pineapple				
Pomegranate				
Raspberry				
Tomato				

Instead of two single-piled feedings per day in a dish, each bear was fed smaller portions 3-5 times per day in enrichment fashion using a variety of food items. It was not long before preferred food items and enrichment events became apparent.

Nicholas loves pineapples. When he is given a whole pineapple he grabs it and runs up a tree into one of his hammock beds. There he can take up to two hours slowly dissecting and consuming his pineapple. He plucks off each green leaf from the top and discards them. Everything else is eaten. Often he will rock back and forth, and hum as he works away at the pineapple. The public sees this and hangs around the exhibit in droves. They can hear his song and obviously take great pleasure in his behavior. It is hard to describe Nicholas' delight with a pineapple as anything other than sheer joy.

Melanka's preferred food items are fish. She is especially fond of frozen "fishcicles". However, foods that were most often consumed as a staple were fruits. Both bears also enjoyed browse. In the fall they would eat the bark, and in the spring and summer they preferred to eat the leaves.



Photo by Bo Semchyslyn

All species of bears respond better to the day's events when they are satiated first thing in the morning. The morning starts for them when the sun comes up and then they expect to be fed because they are hungry. If they were not satiated they often begin to pace or show other stereotypies (Winhall, W., 2000). This held true for Nicholas and Melanka. Feeding time was usually accompanied by a short (5 min. max.) conditioning/bonding session. This was their time when they had the keeper's undivided attention. Each bear loved it and thrived because of it.

Wild and Captive Enrichment

What makes the natural environment enriching? The two obvious answers are choice and change. The shape of a bear's niche in terms of what is permanent, ephemeral, or changes constantly is species specific. In the wild, a bear will use its behavioral repertoire differently depending on the current state of its environment (Poulsen, E., 1994).

Creating an environment that effectively offers change and choice for a bear requires enrichment, conditioning and relationship, enclosure design/renovation, appropriate diet,

and time all working in unison. It takes forethought to create an holistic environment that can maintain mentally and physically healthy bears. Placing a ball in an exhibit is not enrichment...it is ten minutes entertainment. The enrichment offered must provide the animal with challenge, enjoyment, and a learning experience. To put together an enrichment event several times a day requires that the animal will shift quickly for you. To get an animal to move efficiently without stress requires the trust that is developed through relationship and training. The diet must be flexible enough to allow the keeper the materials they need to create enrichment events. Not all enrichment is diet-related but often it provides the incentive for the animal's participation. An old enclosure must be renovated to accommodate modern husbandry.

Learning how to use your time efficiently is the keeper's most valuable tool. Using volunteers is one of the best ways to offer enrichment multiple times on a daily basis. Animal care volunteers can put together enrichment objects while the keeper goes about their other daily business. With some experience volunteers begin to suggest other ideas for events. After discussion with the keeper and possible idea modification, they can go about collecting and/or making the needed materials. It takes planning to put together a good volunteer team but the time spent is well worth it.

These techniques were used to put together daily enrichment for Melanka and Nicholas. Some of their favorite enrichment events were the easiest to provide. Melanka is a nest builder. Like many female bears she can spend hours fluffing and cleaning her nest. Her nest was cleaned out by keepers once a week. On that day she was given a new bale of straw, and many yards of burlap. She would spend a great deal of time fluffing the straw to make a bed and then she would fluff the burlap and place it on top. To "fluff" burlap you stand on your hind legs, take an end of burlap in your mouth and swing it around in the air in a figure eight. At times she looked like she was performing an Olympic floor routine. As she worked she would often hum, and talk to herself. A spectacled bear humming is a sign of enrichment success!

Another of Melanka's favorite events came about by accident. The smell of the arrival of her new fishing cat neighbors deeply concerned Melanka. She paced very quickly for days. To give her something to take her "aggression" out on, she was given a kiddie pool full of feeder fish in the building. It was assumed that she would chase after the fish with her paws or snap at them. The event was a huge success, but not for the reasons we initially anticipated. Melanka noticed the fish very quickly. After a bit of time she stopped pacing, sat down by the pool and watched the fish swim. When the fish stopped swimming she would gently touch the surface of the water and the fish would move again. She spent a great deal of time watching her fish. Much to the keeper's amazement she now had to find fish food because it became apparent that these fish were here to stay. When the enclosure was cleaned so was the pool. When Melanka would re-enter her clean quarters one of her check stops was always the fish pool. The pool also provided a place for her to bathe in the winter and likely provided some humidity in the room. On rare occasions she had a bad scratching day, and she would sit in the pool covered in water which seemed to give her some relief.

Nicholas also had his favorite enrichment events. Aside from dissecting pineapples he loved to run around the exhibit sucking up mealworms. However, what helped Nicholas the most with his problems was the fact that there would always be another event very soon. He

needs the change and choice on a regular daily basis, whereas Melanka needs her daily enrichment and then she likes to have her privacy.

Some enrichment events were often repeated on a daily basis, such as the scatter feeds, "lunch boxes", and conditioning/bonding sessions. Other events were performed less frequently such as a weekly rearranging/change of enclosure objects to manipulate.

We found that Melanka and Nicholas could both be locked outside with 0% pacing all day if they were enriched a minimum of three times a day. (Willms, E., 2000). With the enrichment came a visit from the keeper and another short conditioning/bonding session.

The key to the success of this work was due to the fact that each animal was treated as an individual with a personal history and preferences. Their environment was assessed in its totality, and a bond was developed between the staff and the animal.

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International School for Elephant Management

Course Prospectus

Curriculum - *Anatomy*: Skeletal Structure, Musculature Skin Reproductive System; *Behavior*: Emotional and Intellectual Characteristics, Behavior in Captive Environments, Human and Elephant Relationships. *Physical Maintenance*: Feet, Skin, Tusks, Bathing; *Rope and Chaincraft*: Knots and Splicing Rope, Proper Use of Ropes and Chains, Proper Chain Hardware, Safe and Humane Application for Positive Results; *Handling of Difficult or Dangerous Elephants*: General Safety Practices in Proximity to Elephants, Behavior Reinforcement; *Elephant Handling Techniques*: Hands-on Experience with Asian and African Elephants; Restricted Contact Techniques; *Medication and Disease*: Diagnosis, Treatments, New Advances in Research; *Elephant Reproduction*: Basics of Elephant Reproduction, Blood Work* and Other Techniques (i.e. Ultra-Sound, Semen Collection) for Gauging Estrous Cycles and Fertility, Managing a Mixed Gender Herd, Managing Multiple Males.

*Adjunct blood analysis work for Riddle's Elephant and Wildlife Sanctuary developed and conducted by the Chemistry Department of Hendrix College in Conway, AR.

Faculty: Scott W. Riddle, Instructor, Executive Director of Riddle's Elephant and Wildlife Sanctuary; Heidi S. Riddle, Instructor, Director of Operations of Riddle's Elephant and Wildlife Sanctuary; Robert "Smokey" Jones, Advisor, an internationally known expert in elephant handling and training. Developed many of the elephant management techniques in use today; Guest Speakers - Dr. Bets Rasmussen Ph.D., Elephant Researcher; Dr. Tom Goodwin Ph.D., Elephant Researcher; Dr. Dennis Schmitt DVM Ph.D., Elephant Veterinarian; Dr. Carl Fulton DVM, Consulting Veterinarian for Riddle's Elephant and Wildlife Sanctuary.

Course Philosophy: Elephants present very special challenges in the areas of training, handling and safety procedures, due to their great size and strength in combination with their high intelligence. The founders of Riddle's Elephant and Wildlife Sanctuary, a non-profit organization for the preservation and survival of the African and Asian elephant, believe that improper management will lead to suffering and danger for both elephants and their handlers, and restrict opportunities for education and scientific studies.

Therefore, Riddle's Elephant and Wildlife Sanctuary has developed a curriculum and in 1994 began conducting, on an annual basis, a formal school for elephant managers and enthusiasts.

This hands-on course in humane care, handling, and safety procedures for elephants delves into acceptable parameters in which elephants and humans can co-exist. We teach: elephant management from the ground up creating an environment of success in dealing with all types of elephants hands-on practices in tried-and-true handling techniques enhancing the effectiveness of any future techniques an individual or institution may adopt in the handling of elephants emphasizing positive reinforcement rather than punitive or negative reinforcement. This course is not targeted at any level of student. All levels are welcomed and will gain valuable information and experience.

Course Attendance Details: Course length: Two weeks. Students are expected to enroll for the entire two-week session. Location: Riddle's Elephant and Wildlife Sanctuary, a 330 acre refuge in the rolling Ozark Mountain foothills is located 60 miles north of Little Rock, AR. Lodging: Dormitory housing (2 per room) and all meals are provided for participants.

Enrollment information: For updated schedules, dates and fees, please contact the office at Riddle's Elephant and Wildlife Sanctuary, P.O. Box 715 Greenbrier AR 72058 USA; Phone (501) 589-3291; Fax (501) 589-2248; e-mail: elephantfarm@alltel.net

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THANKS!

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@kscable.com< We are no longer located at the Topeka Zoo, so please note new address!*

ANIMAL CARETAKER/KEEPER...Private Facility located in Ft.Lauderdale, FL. Immediate opening. full-time position available working with big cats in a keeper capacity. Cub experience helpful as we currently have a 12-week-old Bengal tiger. Unique work environment on this stunning six-acre compound that includes rock formations and waterfalls on premise. Duties include animal husbandry, handyman tasks, grounds maintenance as well as hands-on apprentice involvement with the animal residents. Cats are leash walked and rotated from 1/4 acre habitats on a daily basis. Nights/weekends/holiday rotations. Benefits include health insurance, paid vacations, bonuses, and meals after acceptance into permanent position following three-month probationary period. Must be able to pass in-depth background check. Salary determined on an individual basis depending on skill level, minimum \$20-23K. Applicants must be athletic, and physically fit, alcohol and drug free! Animal experience given priority/animal interest a must. Job is physically demanding requiring the ability to lift at least 50 lbs. Serious inquiries with long-term intent **only** please respond with resumé and cover letter by fax to (954) 252-8188. **NO PHONE CALLS PLEASE!** If you have applied in the past six months, please do not reapply.

ANIMAL KEEPER...full-time position with benefits. Minimum requirements are high school diploma and two (2) years experience in a zoological institution or related field; college degree preferred. Will be responsible for mammal and avian collection animals at either the Nashville Zoo at Grassmere or Nashville Zoo Breeding and Quarantine facilities. General knowledge of mammal/avian husbandry and strong communication skills required, may specialize in a select order. **Closing date is 15 April 2001.** Please send letter of intent and resumé to: Joe DeGrauw, Zoological/Avian Curator, Nashville Zoo at Grassmere, 37777 Nolensville Rd., Nashville, TN 37211 or Fax to (615) 333-0728.

TEACHING ZOO OPERATIONS SUPERVISOR...Moorpark College, Moorpark, CA. Salary Range: \$4,113 to \$5,705/month. **Filing Deadline: Monday, 30 April, 2001.** Under the direction of the Dean, oversee and coordinate operation of America's Teaching Zoo, providing for the safety and security of the students, public, faculty, staff and the animals; providing care and maintenance of the animal collection, the facilities and the grounds, providing support service to the students, faculty and EATM program, and providing fundraising initiatives to support the collection. Required Education and Experience: Any combination equivalent to bachelor's degree in business, liberal studies, sciences or related field and four (4) years of increasingly responsible experience in the care and handling of exotic animals in a zoo or entertainment park. For a complete job announcement reflecting duties, minimum qualifications, and examination and selection process, and for an application and supplemental questionnaire, call 805/384-8368 or see our website at www.vccd.net. All applicants must submit an application and a supplemental questionnaire by the filing deadline. Resumés only will not be accepted.

ANIMAL KEEPER...The Birmingham Zoo is working to grow and diversify its applicant pool for Animal Keeper positions. A degree in biology, or related field is preferred. Potential applicants are needed for future openings in the Primate, Carnivore, Hoofed Stock, Pachyderm, Bird, and Reptile departments. Please send cover letter and resume to: Marcia Riedmiller, Mammal Curator, The Birmingham Zoo, 2630 Cahaba Road, Birmingham, AL 35223. E-mail: mriedmiller@birminghamzoo.com Resumés will be kept on file for one year. EOE

AVICULTURIST...Tracy Aviary is seeking a highly motivated aviculturist to join our enthusiastic, professional team. We are a small institution where each person's contribution is vital. A BS in biology or a related field and at least one (1) year's experience working with birds in a zoological facility is preferred. The successful candidate will be involved in all aspects of avian husbandry for a large and varied collection that includes, among others, hornbills, cranes, pheasants, waterfowl,

psittacines and raptors. Duties will include diet preparation, cleaning, enrichment, record-keeping, exhibit maintenance, minor veterinary care, interaction with the public, and training and supervising interns. Input to our long-term planning process will also be encouraged. Salary \$18,00.00 plus excellent benefits. **Open until position is filled.** Send cover letter, resumé, and three (3) references to: Nigella Hillgarth, Tracy Aviary, 589 East 1300 South, Salt Lake City, UT 84105 or fax information to: (801) 596-7325.

ANIMAL KEEPER-GUIDES...several positions available for 2001 season. May through October. Paid zoo experience preferred but volunteer experience acceptable. Non-smokers preferred. Applicants must have strong, audible voices, neat appearance, good personalities, and must work well with co-workers as well as with the public. Duties include daily animal care and feeding, exhibit cleaning and maintenance, various other maintenance duties, and talking to groups in a tour situation. Must lecture on both non-venomous and venomous reptiles. Also, must have experience in handling non-venomous reptiles or the willingness to learn. No personal pets. Salary \$210.00 per week, living quarters, utilities, and uniforms furnished. Contact: Jim Miller, 89 Evans Cove Rd., Maggie Valley, NC 28751 (828) 926-1746. Please send resumé as soon as possible.

AVICULTURE INTERN...interns receive intensive hands-on training in the care and maintenance of a large bird collection. They will experience all aspects of bird husbandry including general cleaning, handling, incubation, record keeping, public education, etc. Seeking college students or recent graduates with an interest in avian management/zoo biology. Interns will work with aviculturists for a minimum three-month period. This is a volunteer position with on-site housing provided. Possible stipend. Internships are available year-round. Our interns receive the same training as any new staff member, and most have gone on to paid positions in large AZA accredited institutions. Send cover letter and resumé with references to: Tracey Aviary, 589 E. 1300 South, Salt Lake City, UT 84105. Fax to: (801) 596-7325. ATTN: Kim Sorensen/Jennifer Morris.

SEAWORLD SAN ANTONIO EDUCATION DEPT. INTERNSHIPS...Announcing 2001 Education Internship Program for students seeking degrees in education, sciences, recreation or tourism. There are three types of internships available: 1) Instructional Internships 2) Camp SeaWorld (Day Camp) Internships and 3) Adventure Camp (Residential Camp) Internships. Internships are available from three to ten months. For further information and to obtain an intern information/application packet please contact: SeaWorld San Antonio Education Dept., Internship Program, 10500 SeaWorld Drive, San Antonio, TX 78251-3002 or call 1-800-700-7786.

HERPETOLOGY INTERNSHIP... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2001 spring, summer, and fall season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles.

Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of - snakes in the area, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required.

To apply send a cover letter and resume to: Kristen Wiley, Internship Coordinator , Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. **Deadline for applications for Fall is: 1 June 2001.**

INTERNSHIPS...The Denver Zoo Wildlife Show will have several paid internships available beginning this spring and continuing until September. The Denver Zoo presents a mixed species show that includes,

reptiles, mammals and both flighted and non-flighted birds. Interns will work 40hrs/wk and should be willing to work weekends and holidays. If you are interested in one of these positions please send a resume including availability to Public/Animal Programs, Denver Zoological Foundation, Gates Center, 2300 Steele St., Denver, CO 80205 or contact Brad Parks at publicprog@denverzoo.org Ryan Knight, Wildlife Show Lead Trainer Denver Zoo 2300 Steele St. Denver, CO 80205; phone 303-376-4833 fax 303-376-4839

PRIMATE FOUNDATION OF ARIZONA BEHAVIORAL RESEARCH INTERNSHIP...The Primate Foundation of Arizona is currently accepting applications for their Behavioral Research Internship program. PFA is a private, non-profit, corporation devoted to the preservation, propagation, and study of the chimpanzee (*Pan troglodytes*). It is currently home to more than 70 socially-housed chimpanzees and conducts behavioral research with a goal of improving captive management, environmental enrichment, and well-being of the chimpanzees. The research is conducted on site.

The Behavioral Research Internship provides college students in the behavioral and biological sciences the opportunity for behavioral research experience. It includes three basic components: 1) an introduction to chimpanzee behavior and behavioral observation data collection, 2) chimpanzee psychological wellness program and environmental enrichment training, and 3) research support tasks such as data entry. The introduction to chimpanzee behavioral observation is the primary component of the internship and includes data collection on an assigned project, entering the data into a spreadsheet program, conducting preliminary analysis and completion of a background literature review. Results of the intern project are presented at the end of the internship to the full staff to provide presentation experience.

The internship is on a volunteer basis and provides no stipend. Students should have completed at least two years of a four-year program (Junior level standing) in the behavioral or biological sciences. Both undergraduate and graduate students are encouraged to apply. Previous course work and/or experience in primatology/animal behavior is required for all students. Applications are accepted for three internship periods: Summer, Fall, and Spring. Each internship is three months in duration: Summer - June 1 to August 31; Fall - September 1 to November 28; Spring: March 1 to May 30. Applications should be submitted at least 6 weeks in advance of the internship start date. Please submit your application ASAP as we receive as many as 100 applicants per position. For further information and application materials, please send a letter of request including your full name and mailing address to: Sue Howell, Ph.D., Research Director, Primate Foundation of Arizona, P.O. Box 20027, Mesa, AZ 85277-0027; email: suehpfa@qwest.net

REPTILE KEEPER...under supervision will be responsible for quality maintenance of all exhibits and the reptile collection. Will also serve as a relief guide when needed. Salary \$13.00 per hour. CV and references required. Inquiries should be directed to: Mr. Lou Daddono, Serpent Safari, 1-847-855-8800.

*Positions posted with AAZK, Inc. may also be found on
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MAY 2001

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MAY 2001
Vol. 28, No. 5

Managing Editor: Susan D. Chan • **Associate Editors/Enrichment Options**

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Zoo Infant Development Project - Nell Bekiares, Cincinnati Zoo (Birds/Passerines)

Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo

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About the Cover.....

*This month's cover features the Japanese Serow (*Capricornis crispus*) drawn by Yoshi. Yonetani of the Zoo Design & Education Lab in Kobe, Japan. These goat-like animals stand about 3.5 feet at the shoulder with a stocky body, thick neck, large head and ears, and short limbs. Its horns are stout and conical, pointed backwards, and present in both sexes. Serow are generally colored black or reddish chestnut with white on their limbs, and they inhabit forests and wooded gorges. Usually, serow are solitary, and can be found from 6,000 ft. to 10,000 ft. in the mountains. They are considered a Special Natural Monument in Japan. They belong to the same family as do Rocky Mountain Goats, Takin, Goral and Chamois. This artwork is featured on the latest poster for the Japan Serow Center. Thanks, Yoshi!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per *ISIS*) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@kscable.com<

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Scoops & Scuttlebutt



North American River Otter Husbandry Notebook, 2nd Edition Published

The 2nd Edition of the North American River Otter Husbandry Notebook is now available. This updated and expanded 283 page volume contains contributions from several authors. Information is divided into 17 chapters on: Taxonomy; Distribution; Status; Identification & Description; Behavior, Social Organization & Natural History; Reproduction; Captive Management; Hand-Rearing; Feeding & Nutrition; Health Care; Behavioral & Environmental Enrichment; Training or Behavioral Modification; North American River Otters in European Institutions; Rehabilitators and Otter Resources; Websites, On-Line Education and Useful Addresses; Otter Tales and Legends; General Bibliography. This volume is available at a cost of \$20.00 plus \$2.50 shipping (U.S.), \$5.00 (Canada), \$12.00 (overseas). All funds raised will be contributed to the American Association of Zoos and Aquariums' (AZA) Otter SSP. For additional information contact: Jan Reed-Smith, jrsotter@iserv.net or send a check made payable to John Ball Zoo Society, Attn. Otter Husbandry Notebook, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504.

PJC Elephant Biology & Management Certificate

Four spaces are now available in a five-week, nine credit hour Advanced Technical Certification program in elephant biology & management through Pensacola Junior College. Students will be exposed to elephant morphology, taxonomy, physiology, conservation, and the skills necessary for captive husbandry and management. This program will run full time from 16 July through 18 August, 2001 at Chehaw Wild Animal Park, an AZA institution in Albany, GA. Students with an A.S. degree from any zoo technology/zookeeping degree program are eligible. Housing rental is available. Selection of participants will be based on A.S. Degree in field, GPA (transcripts should be forwarded for non-PJC students), and the recommendation of a zootech program director or zoo curator. Please call (850) 484-1164 or e-mail: jkaplan@pjc.cc.fl.us for more information or an application.

Corrections from April Issue - Please Note

Errors occurred in two items in last month's *AKF* due to end lines being truncated in printing. Under "AAZK Book Sale" (pg. 156) the final lines should have read: Mail requests to: AAZK Beardsley Chapter, Attn: Linda Tomas, 1875 Noble Ave., Bridgeport, CT 06610 USA; phone (203) 394-6563; fax (203) 394-6566; e-mail - beardsleyz@aol.com

Under an "Information Please" (pg.157) the item should have read as follows:

We're looking for information on introducing a new male oryx, specifically scimitar-horned, to an established oryx herd in a mixed-species exhibit. Interested in all successes and failures. Want information such as age of new male, age of herd members, reproductive status, introduction period/method, long-term effects, time of year, etc. We're changing males to introduce a new bloodline and have some flexibility as to how and when we do it. Trying to find the least traumatic method.

Please send any and all information to: Mikael Michault, Hoofstock Keeper, Branfere Animal and Botanical Park, 56 190 Le Guerno, France; or e-mail at Branfere@wanadoo.Fr

We apologize for these errors and any inconvenience it may have caused our readers.

Front Royal Conservation Center on Smithsonian's Chopping Block

The National Zoo's Conservation and Research Center in Front Royal, VA, which works to save endangered species and conducts internationally important research, is scheduled to be closed under a plan announced in mid-April by Smithsonian officials. The proposal is part of the fiscal 2002 budget request which has been sent to Congress and is part of Secretary Lawrence M. Small's effort to reshape the Smithsonian and to strengthen public outreach.

Rep. Frank Wolfe (r-VA), a House Appropriations Committee member whose district includes the 3,200-acre lab in Front Royal, has asked the Smithsonian to reconsider. "Closing the center would be a mistake. The research done at the CRC is on the cutting edge and [enjoys] world renown," Wold said.

Eldon Crowell, an attorney who is President of the Conservation and Research Center Foundation, was alarmed by the direction signaled by the decision. "I think the current feeling at the Smithsonian

is that they wish to put all their emphasis on the zoo in Washington and simply have cages of animals and let it go at that. This is a serious misunderstanding of the function of the modern zoo."

Chris Wimmer, a zoologist who is the center's associate director of conservation said he was "stunned" by the announcement. "Of course, I knew it was within the realm of possibility, but when you look at 26 years of investment by the Smithsonian, I thought it was improbable." Wimmer said the last time the center was evaluated was in 1995 when it received excellent ratings from a peer review by scientists.

CRC Director Lucy H. Spelman, in remarks to the CRC staff, noted that the resources are simply not available to maintain the CRC as a world-class facility and as a center for scientific excellence. There are programs that will be retained as part of the Zoo by relocation to Rock Creek. There are other resources that will also go to Rock Creek, but approximately one-half of all staff positions and operating funds will be transferred to the Under Secretary for Science. The programmatic areas to be retained at the Zoo, with full federal support, include 1) reproductive science, 2) clinical nutrition, and 3) conservation education and training. The closure of CRC thus enables the redistribution of resources to public programs at the Zoo, and to other scientific priorities in accord with the reorganization of science at the Smithsonian.

Closure of CRC is anticipated to be complete by the end of this calendar year, Dec 31, 2001. This decision is based upon reduced federal funding for the Smithsonian, as well as redirection of scientific resources by the Under Secretary for Science, Dennis O'Connor.

Last Chance to Apply for AAZK Grants

The American Association of Zoo Keepers announces the availability of two granting opportunities: *The Conservation, Preservation and Restoration (CPR) Grant* – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member **MUST** have an active role in the conservation effort submitted for consideration.

The Zoo Keeper Grants in Research – Two \$750.00 grants are funded to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator **MUST** be a full-time keeper and a member in good standing of AAZK, Inc.

Deadline for application submission for either grant option is **31 May 2001**. Successful grant recipients will be announced at the AAZK National Conference in Toronto, Canada in early October 2001. The grant cycle runs from 01 January 2001 to 31 December 2001. For further information or an application packet visit the AAZK website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committee Chair, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504; e-mail: jrsotter@iserv.net; Fax: (616)336-3709. Be certain to specify whether you are requesting information on the CPR or Research Grants.

ATTENTION All Professional AAZK Members - Election Ballots Due Back June 1st

All AAZK Professional members are advised that they will be receiving ballots for the upcoming AAZK Board of Directors election during the month of April. Members are asked to mark their ballots and return them in the envelope provided by **1 June 2001**. Please **DO NOT** include any other AAZK correspondence, orders, etc. in this envelope as it does not come to AAZK Administrative Offices. Include only your completed ballot. The Professional Membership will be electing three new Board Members to fill the positions being vacated by Jacque Blessington, Bruce Elkins and Scott Wright whose terms end with the 2001 Conference. New Board members are elected for four-year terms which will begin at the close of the 2001 Conference and run until the close of the 2005 Conference.

San Diego Zoo Offers Koala Research Participation Opportunity

Since 1994, the Zoological Society of San Diego, in conjunction with the Australian Koala Foundation (AKF), has been organizing teams of representatives from interested zoos to assist in collecting field data in Australia with regard to koala habitat utilization and tree species preferences. The data gathered will be analyzed to develop regional models for habitat use by koalas and to subsequently complete further computerized Geographic Information System based mapping specific to koalas called the 'Koala Habitat Atlas'.

Two 2001 field expeditions are currently being offered to zoo representatives interested in participating in this koala conservation effort. Proposed dates for the expeditions are as follows:

1. August 12 to 25 (Noosa, Queensland): This trip will continue investigation of the impacts of habitat fragmentation in this area, to refine the identification of Habitat Linking Areas and Habitat Buffers, and to prepare for the production of a Shire-wide Koala Plan of Management. Participants will be charged US\$1,000 for room, board and transportation for the duration of the field work. Participants will fly in to Brisbane, and will be transported by the AKF to field work locations in Noosa.

2. November 4 to 17 (New South Wales South Western Slopes/South Eastern Highlands): This trip will incorporate the AKF's "Status of the Koala" conference, being held in Canberra from 5 to 7 November. The field trip following the conference will be the first to this region of New South Wales, and will aim to collect initial data on tree species preference and habitat use, as well as population distribution. Participants will be charged US\$1,200.00 to attend both the full conference and the field trip (all room, board and transportation costs covered for the duration of the conference and field work), or US\$800.00 to attend the field trip component alone. The field trip will focus on a number of target areas within an approximately 150km radius of Canberra and will depart from Canberra on the morning of 8 November. Participants will fly in to Canberra and will be transported by the AKF to field work locations.

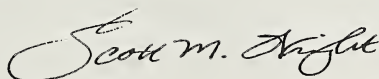
Accommodation during the field work may be in dormitory type facilities with participants helping to prepare group meals. Total costs incurred by each participant include the prices above, plus airfare and any extra costs incurred outside of the actual field work, such as hotel and meal expense before or after the field work is complete. Spaces are limited and will be filled on a first come first serve basis.

Interested participants should contact Valerie Thompson by mail, fax, phone, or e-mail as listed : Valerie Thompson, Associate Curator of Mammals, San Diego Zoo, P.O. Box 120551, San Diego, CA 92112-0551; phone (619) 685-3226, fax (619) 232-4117, e-mail vthompson@sandiegozoo.org
--from ZooNews Digest #145

From the President

Dear Membership;

Once again it is time for the professional membership to cast votes to decide which of your peers will continue to lead this organization into the future. It always amazes me to find out how many of you will actually cast votes. I would like to challenge all of the professional members to actually read the ballots that you have received, vote and send them back. This is a very good way that you can actually show that you do care about AAZK and want to have a voice in the process of choosing your leadership. I wish that we could say that all of the ballots that are sent out are returned, but that never happens. Let's make this election different. Let's try to have the majority of the ballots returned to be counted. I believe the act of voting is not only a privilege but a duty that each of you as professional members have toward your organization. This is one of the easiest ways that you can participate in the future of AAZK. Please vote.



Scott M. Wright
AAZK President
Cleveland Metroparks Zoo





Conference 2001

Toronto, Ontario, CANADA

September 30th to October 4th, 2001

**PRE-CONFERENCE TRIP: Haliburton Forest
And Wildlife Reserve Wolf Center and Canopy Tour
Friday and Saturday, September 28th and 29th**

Experience the Canadian north like few have ever done! The trip consists of an overnight stay just 2 1/2 hours north of Toronto. Visit wolves in their natural environment; walk with wolves in the evening, and the next day to top it all off, a canopy boardwalk some 20 meters (approx. 60 feet) above the forest floor. Delegates will spend the night at the reserves' two lodges. Sign up early as there is limited seating for this unique trip. The cost of this overnight package is \$150 (CD).

**POST-CONFERENCE TRIP: Niagara Falls Excursion
Friday and Saturday, October 5th and 6th**

Friday will begin with a wine tour through Southern Ontario's prime vineland and will end in Niagara Falls. In Niagara Falls, delegates are free to explore the natural beauty of the falls, the unique main street of the city or even the casino. Saturday we leave for the African Lion Safari for a tour and lunch before heading back to Toronto. We will be staying at the Days Inn Clifton Hill, and delegates are responsible for booking their own rooms. The phone number is (905) 358-0277 and make sure to say that you're part of the AAZK for the special room rate of \$89 (CD) for a double room accommodating one to four people. This trip will have limited seating as well, so sign up early. The cost of this trip is \$60 (CD).

For details contact Mavis Russell at (416) 392-5964, Lesya Pedden at
aazk@zoo.metrotor.on.ca OR visit our website at aazktoronto.tripod.com

The AAZK Conference bug has hit Toronto in a big way. The wheels are turning, everybody's talking about it. Here are some recently overheard snippets:

"Damn it, with their dollar they'll get rich just by crossing the border"

...Zoo Accountant on hearing Toronto was hosting the Conference.

"I hope everybody likes raw Seal."

...Catering Committee Member

"Seems like an awful lot of work to do, just for a bunch of Americans"

...Former Head of the Hospitality Committee.

"We simply don't stock that much in one store"

...Beer Retailer's response to our order.

"Scott Fuller? I've forgotten the name already."

*...Hotel Security Guard pocketing a bribe and relinquishing the
Hotel's only copy of 'America's Most Notorious Hotel Guests'.*

"Why do they need pumpkins for decoration on the top floor?"

...Duped Hotel Manager to his assistant

Coming Events

Symposium on the Medical Management and Captive Care of Chiroptera - 15-18 May 2002. Hosted by The Lubee Foundation. AZA Bat Taxon advisory Group, and University of Florida Veterinary Medical Teaching Hospital to be held in Gainesville, FL. Program includes presentations on medical management, emerging diseases, field programs, conservation, education and captive husbandry and management of Chiroptera. A separate two-day Zoo Educators Workshop, a one-day Florida Teachers Workshop and a Rodrigues Fruit Bat Family Extravaganza will also be held in conjunction with this conference. For more information contact: John Seyjaquet, Lubee Foundation at (352) 485-1250 - lubeebat@aol.com or Pete Riger, Nashville Zoo at Grassmere at (615) 833-1534 x51 - priger@email.msn.com

13th International Conference on Bear Management and Research - 21 - 25 May 2001 in Jackson Hole, WY. For further information visit conference website: <http://outreach.uwyo.edu/conferences/bears>

International Elephant and Rhino Research Symposium - 7-11 June 2001 at Vienna Zoo Schoenbrunn, Austria. For further information contact: Hschwammer@zoovienna.at< Or visit <http://www.zoovienna.at>

Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or you may contact the local hosts Andy Balustein (blaustea@bbc.orst.edu) or Lynne Houck (houck@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aav.

American Association of Zoo Veterinarians - September 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of Wildlife Veterinarians and the Nutrition Advisory Group. Sessions include reptilian, avian and aquatic animal medicine, environmental activism, clinical pathology, anesthesia, behavior/escapes, megavertebrates, small mammals, nutrition, field project reports, and case reports. there will also be a poster session, veterinary student paper competitions, and

workshops/wet labs. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (610) 892-4812; fax (610) 892-4813; e-mail aazv@aol.com

International AAZK Conference - 30 Sept. - 4 Oct. 2001 in Toronto, Ontario, Canada. See this issue of *AKF* for Call for Papers, Registration/Hotel Forms, Pre- and Post-Conference Trip Details, etc. or visit the AAZK Conference website at: <http://aazktoonto.tripod.com>

5th International Conference on Environmental Enrichment - 4 - 9 November 2001 at the Taronga Zoo, Australia. For further info contact: Mhawkins@zoo.nsw.gov.au Or visit <http://www.zoo.nsw.gov.au>

Fourth Annual Zoos & Aquariums: Committing to Conservation Conference - 28 November to 2 December 2001 in Cocoa Beach, FL. Hosted by the Brevard Zoo, our goal is to bring field researchers and zoo personnel together in an informal setting in order to promote a greater involvement of zoos and aquariums supporting *in situ* work. This conference in particular will focus on a practical common-sense approach on how zoos and aquariums can become involved in supporting field research and conservation. The conference will be a mixture of sessions, panel discussions and round-tables. Conference registration fee (\$175) will include sessions, some meals and social activities. Orlando Conference Committee - Schedule of Events, Papers, Abstracts, Speakers: Beth Armstrong - (321) 454-6285; Registration Chair: Michelle Smurl - (321) 254- 9453 ext.17; Registration/Post Conference Tour: Peggy Sloan - (321) 254-9453 ext. 14; Conference Chair: Margo McKnight - (321) 254-9453 ext. 23.



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ABC's

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

BEHAVIOR EVALUATION: *American Zoo. African Elephant (Loxodonta Africana).*

QUESTION

We have a group of African elephants that we are working and are having some difficulties with forward progress in some of our training. Can you give us some guidance?

DISCUSSION

The group of elephants is currently being worked by a team of elephant keepers in Protected Contact. Although there is some control, the keepers would like to have more cooperative behavior and finer behavior response from the animal.

In this case, the keeper staff has some basic background in animal training but the crew does not collectively have long-term experience. Keepers would like to have more behavioral control, be able to use the restraint chute, and have consistent husbandry behavioral control.

ANSWER

Most of the challenges being faced appear to be due to inexperience of the staff. Observations of working sessions reveal that some simple changes would alleviate some of the problems. Low occurrences of aggression were not identified by staff and inadvertently reinforced when the animal performed the requested behavior. Here are some suggestions:

Review animal behavior nuances of the species.

Observations of your animals, reading additional materials on the species, and reviewing some of the existing videotapes of aggressing elephants with the assistance of an elephant behaviorist or consultant would be of value. Identifying low-level signals elephants give before aggression escalates is recommended. Watch for changes in body tension, ear, head, trunk and tail positions, breathing, movement, and eye appearance.

Review operant conditioning training concepts.

Be sure to continue reading and discussions on training. The biggest challenges faced by zoo keepers are getting comfortable with continuous reinforcement and failure to progress into more advanced training concepts. (*Note: This zoo has subsequently conducted an animal behavior training course and hired an elephant consultant to assist in forward progress.*)

Ask for behaviors once or twice and then give a time out before attempting behavior again.

The repetition of commands teaches your animals that they do not have to respond to commands. What you are doing is teaching them to ignore your directives. Consistency and consequences are important to delineate clearly when training.

Use body posture and positioning to assist you.

Animals will often cue from your body positioning and posture. Elephants also need room to navigate. If you are asking for a "Come In Line" (a stationing behavior) you may need to move

your target or body to cue the animal through movement into a position they can turn into, especially when you are in tight quarters.

Work the animal with slow clear steps that you have defined before the session starts.

For those behaviors where you are having problems with cooperation, be sure to define the steps you need to take to approximate successfully. Trying to accomplish too much too fast, or attempting to raise the criteria, when an animal is not comfortable with the distraction level or environment will not yield success. Take slower steps and end on success.

Work with intermittent reinforcement.

Move from continuous reinforcement into variable reinforcement. Start reinforcing the fastest responses and progressive steps into the behaviors you are trying to obtain. Jackpot or bonus incremental success to drive the point home.

Maintain consistency in established behaviors.

Once you have obtained a specific behavior make sure you do not backslide into previous levels. It is important for your team to be consistent in this area. Accomplish this through training logs, daily and weekly communication between trainers.

Work sessions for desensitization (and only desensitization not other behaviors).

If an animal is balking at performing certain behaviors in different surroundings then you will want to take the time to train tolerance or desensitize the animal to those surroundings or objects. You reward tolerance and cooperative behavior while gaining closer proximity to the aversive object. Simple behaviors like “Steady” can be reinforced before you increase to more complex behaviors in closer proximity.

Remember that training should be consistent and focus on “short & sweet” sessions. You can sharpen the behavior criteria gradually and when then animal makes a mistake or hesitates, you can redirect and end successfully.

If the animal refuses to respond, either take a short time-out and try again or attempt another behavior. The idea is to ask for a simple behavior and obtain success and then try again. Use care to not repeat a behavior that has been exhibited successfully and to proper criteria — ask once and move on.

About the Author: Since 1978 Diana Guerrero has worked professionally in a variety of animal facilities. She has been certified by a variety of educational organizations such as the Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Affection Animal Training School, The International Training Centre at the Jersey Wildlife Preservation Trust in England, and program extensions with Marwell Zoological Park and Kent University.

Her unique adventures with animals of all types give her unrivaled experiences and insights. Information on seminars, training, courses, animal careers and publications are available at her website: <<http://www.arkanimals.com>> com <<http://www.arkanimals.com>> >. Questions for ABC's should be submitted to Diana directly via email: <arkabc@arkanimals.com> or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.

Resources for Crisis Management in Zoos and Other Animal Care Facilities

Resources for Crisis Management in Zoos and Other Animal Care Facilities - edited by S.D. Chan, W.K. Baker, Jr. and D.L. Guerrero. ©1999 ISBN #1-929672-02-0

This reference work is an anthology of articles by authors from zoo keepers to veterinarians to zoo directors to public relations specialists. The works of 56 authors from these diverse zoological perspectives brings together information and resources for planning a crisis management program for your facility or for augmenting an existing program. The 424-page volume includes a foreward by Sydney J. Butler, Executive Director of the American Zoo and Aquarium Association.

The book's chapters are arranged by the following subject topics: Factors That Influence Crisis Management in a Zoological Setting; Developing An Emergency Preparedness Plan; Emergency Response and Crisis Management Teams; Public Relations and the Crisis Situation; Animal Restraint and Animal Identification Techniques; Dealing with A Crisis Situation (Zoological Crisis, Natural Disasters, and Manmade Disasters); Injury and Death at the Zoo; and Taxon-Specific Crisis Management Protocols. This important work also includes an extensive Appendix and a listing of suppliers and equipment vendors. AAZK has gathered the best of existing articles on crisis management and expanded the text with originally solicited materials on Zoonotic Disease: Risk Appreciation and Biosafety, Meteorological Aspects of Disaster Planning, The Weapons Response to a Zoological Crisis Situation, The Process of Exhibit Design and Construction: How It Affects Crisis Management, etc. The book includes the results of the first-ever North American Crisis Management Survey as well as Case Studies showing how zoos reacted in various crisis situations and what was learned from their experiences. A must for every zoo professional!

To order fill out the form below and return with your payment to: AAZK, Inc., CMR, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 U.S.A. Checks and money orders should be made payable to: "AAZK, Inc." (U.S. FUNDS ONLY). If using a credit card, make sure to complete all requested information on form. Prices are: AAZK Members \$45.00 Non Members \$60.00. Prices include domestic Book Rate Postage. Orders outside the continental U. S. should add \$15.00 for parcel post surface shipping.

Crisis Management Book Order Form

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This Form may be photocopied to facilitate order. Credit card orders may be placed by calling 1-800-242-4519 (US) or 1-800-468-1966 (Canada)

AAZK Announces New Members

Ian Ives, **Franklin Park Zoo (MA)**; Suzanne Kaplan and Diane Tetreault, **Zoo New England (MA)**; Christine Carlson, Christina Way, Dave Cafaro and Michael Jeffries, **Roger Williams Park Zoo (RI)**; Maggie Phillips, **Elmwood Park Zoo (PA)**; Rhonda McHugh, **North Carolina Zoological Park (NC)**; Jennifer Bowlby, **Carnivore Preservation Trust (NC)**; Theresa Henderson, Shayne Fogle and Allison Cox, **Jacksonville Zoo (FL)**; Yuri Mitzkewich, **Monkey Jungle (FL)**; Nancy Graue, **Lowry Park Zoo (FL)**; Kevin Cassman, **Toldeo Zoo (OH)**; Kelly Marie Bryant, **Cleveland Metroparks Zoo (OH)**; Becky Bishop, **Indianapolis Zoo (IN)**; Jody Davidson, **Columbian Park Zoo (IN)**; Shirley Williams and Lori Hurlburt, **Kansas City Zoo (MO)**; Elizabeth Thomas, **BREC's Baton Rouge Zoo (LA)**; Beverly Markwich, **Oklahoma City Zoo (OK)**; Craig Younginger, **Caldwell Zoo (TX)**; Wendi Sweeney, **Ellen Trout Zoo (TX)**; Christina I. Kennison, **Houston Zoo (TX)**; Heather Green, **The Aquarium at Moody Gardens (TX)**; Mari Lindeburg, **San Antonio Zoo (TX)**; Donielle Burrus, **Cheyenne Mountain Zoo (CO)**; Darrell Markum, **Pocatello Zoo (ID)**; Matthew Berg, **The Phoenix Zoo (AZ)**; Bonnie Kangas, **Albuquerque Biological Park (NM)**; Carlos M. Rasales, **Santa Ana Zoo (CA)**; Chris Hackler, **Oakland Zoo (CA)**; Beth Ann Foglesong, **The Alaska Zoo (AK)**; and Heather Gibson, **Toronto Zoo (Ontario, Canada)**.

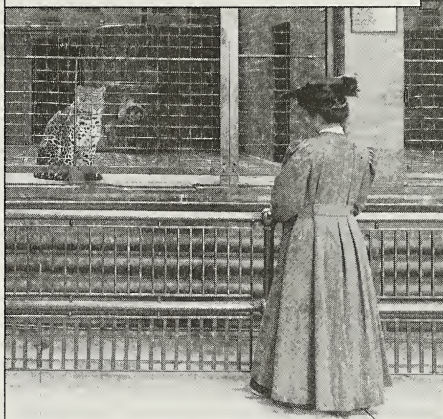
Renewing Contributing Members

Thomas C. Roy, Docent
Detroit Zoo, Detroit, MI

Bonnie Jacobs, Keeper
Lincoln Park Zoo, Chicago, IL

Reed Gleason
Portland, OR

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Visitor viewing snow leopard, Bronx Zoo, 1906.
Photo © Wildlife Conservation Society, Bronx Zoo.

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—John Alcock, author
of *Animal Behavior*

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—Mark A. Dimmitt,
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Arizona-Sonora Desert Museum

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REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr.
Gainesville, TX

Question

(Two Questions) What options does a zoological facility have in the event of a long-term loss of electrical power and are your comments based on training and technical knowledge or combined with crisis experience?

Comments: First Question

Zoological facilities that experience a long-term power loss can be severely crippled. Water, lighting, septic, sewage, storm pumps, heat, air conditioning, hot wires, and hydraulic doors can all be affected. It is also likely that if you have lost long-term power, it is probably due to a natural disaster. This means that powered veterinary equipment will not be available when it's needed most. To address a power loss there are three basic options: alternative energy resources, portable generators, and stand-by generators.

Alternative Energy Resources

The most common forms of alternative energy are solar and wind power. However, if your facility is in proximity to volcanic activity or a river, geothermal or hydroelectric energy might be an option. Still, those are geographically dependent for application. Another option would be wind turbines. These have been used successfully in California and Texas, but once again they are geographically dependent on the prevailing wind patterns for sustainable use.

Solar power can be effective, but it requires an extensive amount of space for collection panel location. It also requires an extensive initial financial outlay. However, more is known about solar energy than probably any other form of alternative energy. It does work. The downside is that most solar panels are fragile. Storm damage could render them inoperable when they are needed most. Yes, conserved battery power will provide temporary relief, but it is not a permanent solution to the problem. I had often thought that if a sheet of Lexan™ in a stainless steel frame protected the panels, that this would provide a viable option for protection from impact damage.

Portable Generators

Smaller, portable generators have been around for quite sometime and were a popular item for Y2K preparation. There are quite a number of brands currently available: Coleman, Generac, Honda, John Deere, Kohler, and Vanguard. All of these brands tend to be quality products and offer good service. Still, the limitations are stress, time, and fuel. Portable is good, but it also means low output due to diminished size. As a result, the longer they run and are required to provide service, especially heavy electrical loads, the sooner they wear out. Also, they require constant refueling, a long-term logistical nightmare.

Stand-By Generators

This type of generator is definitely the best choice for power when the main power grid fails. It's always there when you need it in one protected central location. Typically, they also have a decent fuel

reserve capacity or can be linked to a fuel reservoir. One generator in this class can easily provide electrical power for an entire facility. The most notable manufacturers are: Caterpillar, Deere, Dyna, Generac, Northern Pro, Trane, and Volkswagen. One word of caution, they are extremely expensive. Inevitably, it will be a capitalized item in your annual budget, with prices ranging from \$5000. - \$100,000. Try to think of it as a long-term investment, that way it doesn't hurt as much.

Comments: Second Question

While it is true that I have significant technical training and instructorships in areas that are applicable to crisis management, I would like to think that my life experiences balance it out.

To date, I have been struck twice by lightning, weathered two hurricanes, survived two tornados, and dodged one waterspout. I have lost count of the hailstorms, flooding, ice storms, and snowstorms. I have survived a blue shark feeding frenzy while snorkeling off Florida and was chased by a hammer-head shark while surfing off the Texas coast.

In the past, I have been threatened at gunpoint by rustlers, shot at by poachers, and survived assaults and bombing attempts by terrorists. In the process I discovered that it really tends to make me upset. But, I shouldn't complain, I did resolve the situations and survived.

While acting as the safety diver on a night dive in a blue hole, I discovered that my dive buddy was claustrophobic when his primary night light failed at the same time another diver's first stage malfunctioned and he went into an out-of-air situation. But, we resolved that and went on for several more days of good diving.

One of my favorites was a dangerous game hunt in the Rocky Mountains when my horse lost his footing on an ice floe, went down, and threw me clear onto the ice in the process. I slid to the edge of the cliff we were paralleling and my holster caught on a rock with my legs hanging in mid-air over the edge. A few days later our party was attacked by a grizzly bear and I discovered that when your rifle malfunctions and you use a pistol instead, it just irritates the bear. We called it a draw.

As far as crisis management situations go, I have been through approximately forty or so. Of the forty events, I can say that five were definitely dangerous animal situations. All were resolved without injury or loss of life, even the "problematic" first one that was the dangerous animal situation, which "broke all the rules".

In retrospect, I like to think life is a journey, not a guided tour and that it has been influenced equally by both the professionals and the truly dysfunctional that I have worked with in my career. Conversely, my attitude has been shaped by conservation, imperialism, militarism, and Zen philosophy. To paraphrase the great poet Robert Frost, I took the road less traveled and it has made all the difference.

Next Month: We have been experiencing problems with our shift doors in our carnivore building, what options do we have?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S. W. 29th St., Suite 133, Topeka, KS 66614 - 2054 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.

Putting Our Guests “in touch” with the Out-of-Reach Residents of a Walk-through Aviary

*By Jeff Ignaut, Bird Department
Disney's Animal Kingdom, Lake Buena Vista, FL*

All too often we find that birds exhibited in a zoological facility can be a “hard sell”, being viewed as background or aesthetic species rather than the focal point of zoo exhibits. This is especially true in the case of a free-flight aviary environment where, understandably, the full extent of the collection can't always be seen, and posted graphics may not pacify guests who are accustomed to a sign matching a specimen which is front and center within a habitat.

The easiest solution to the hurdle of meeting guests' expectations for species identification inside a walk-through aviary is to accompany the visitor and identify any individuals which come into view. This option is clearly not possible for many reasons, with staffing and funds being limited at most institutions.

Disney's Animal Kingdom currently has two exhibits which offer guests the opportunity to walk amongst 30+ species of free-flight birds, and the challenge of developing an awareness of and appreciation for the variety of species exhibited in these aviaries is addressed in several ways. Due to the fact that both of Disney's Animal Kingdom's aviary exhibits are incorporated into carefully themed areas of the park, any graphics, bird guides or interpretive assistance from park employees must be scripted to enhance a story line. This story is painstakingly followed throughout our guests' experience of each given area within the park.

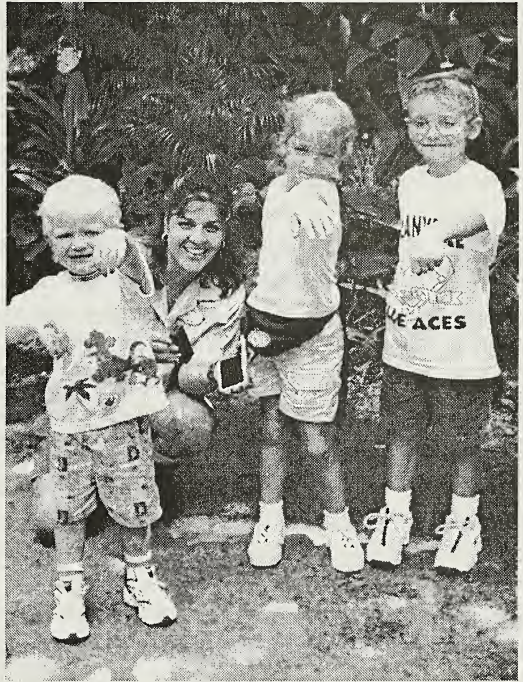
To better explain this concept of an exhibit which incorporates a story or theme, I will site several examples from one of our two very individual aviary experiences.

Our park's African themed aviary is situated in an area of the park which recreates the experience of following a trail into a forest setting, with the “safety cage” approach area for the aviary being disguised as a research outpost. Since the exhibit is intentionally designed to be inconspicuous, guests join the bird population within the aviary and don't initially realize they are sharing their space with the aviary's resident population. Many times we find that as our guests are moving throughout the exhibit they tend to be “on a mission” to find a collection of lowland gorillas that are the more publicized residents of this area of the park. Generally we find that simply stopping the guest traffic long enough to point out an interesting specimen, or encouraging our education hosts to indicate that birds “have been sighted in this area of the forest”, can start a contagious enthusiasm which has been shown to extend the time which guests spend in the area of this walk-through aviary.

In addition to pointing out select specimens as they are observed perching, flying or feeding within the aviary, guests who visit the area are also offered the opportunity to view, and often choose to handle hollowed eggs, durable feathers, nesting materials or actual nests as well as some of the equipment utilized for enrichment of the residents of the aviary. When these items are displayed or shared by the staff within the exhibit they are interpreted as

items which have been collected during the field research or observation sessions in the area. In the case of the enrichment equipment, such as dispersal feeders or insect feeders which challenge the birds to find live mealworms or crickets, our host and hostess attendants explain these as a technique for bringing some of the area birds into close proximity where they might be more readily photographed or studied by our research team.

One technique (affectionately referred to as a “Guest Experience” here at Disney) which was developed to draw in the enthusiasm of our younger guests was the use of a variety of avian-themed rubber stamps to provide a complimentary ink imprint of select bird images. At each of Disney’s four theme parks, young people seek out the many characters from the long list of animated feature films to acquire autographs as a long-lasting memory of their experience at Disney and souvenir of their real-life encounter with these animated personalities. With this previous interest in the autograph sessions already established, it made sense to generate excitement among our young guests by offering autographs from the bird residents which they were already experiencing in an up-close setting. Since children and adults probably have a history of birds leaving their mark in a less desirable manner, the stamp-image autographs have proven to be fun, safe and positive experiences for all involved!



Young visitors to Disney's Animal Kingdom bird sanctuary are offered bird autographs in the form of temporary stamp imprints. (© Disney)

The most effective image which is utilized for these avian autographs is a set of three avian footprints which appear on a single rubber stamp. Imprints of these bird tracks make a clever mark on the pages of the aforementioned autograph books, but they are also well-received as a simple hand stamp which allows the recipients to show off how a bird walked on their hand. In situations where young boys have outgrown the idea of a cute hand stamp, they are often “sold” on the idea of getting a bird-claw tattoo!

Additional rubber stamp images which can possibly be located and incorporated into this avian autograph project and which can usually be found at a local craft supplies store or stores which exclusively sell rubber stamps include:

- Images of select resident species
- Birdhouse illustrations
- Egg , or nest & egg designs
- Text of environmental messages
- Bird tracks/footprints
- Logo of your own institution

Another great source for these and other rubber stamps are catalogs from suppliers of such stamps or of materials for memories scrapbooks which are currently the rage amongst craft-focused people. Several websites for stamping or other craft supplies may also have an inventory of very useful rubber stamps.

In addition to the fact that this rubber stamp imaging can create an excitement about the bird collection exhibited at a zoological park, it also promotes an interactive experience between the staff and the guests visiting your facility. The initial investment is nominal as most rubber stamps are fairly inexpensive and the inkpads can be recharged with bottled ink that is sold to keep these pads useful. The rubber stamping has also proven to be environmentally friendly as it eliminates litter which other souvenir items may generate. Through the use of these rubber stamps, an image can be linked to a message which will allow for excitement without discarded stickers or papers peeled from the backs of such stickers being dropped in close proximity to curious birds. Too often with visitors to a fully immersive bird exhibit, there can be related hazards from litter, discarded food or other debris dropped by guests who may not be aware of the impact which these materials can have on the residents of such a collection.

The sale of the autograph books has been a great revenue generator in the case of the Disney theme parks, but this idea may not be applicable to a zoological park setting as there are few other areas to encourage the autograph seeker concept. However, a simple concept such as a zoo passport or a map supplement for children can easily serve as the medium to get the interactive rubber stamping program incorporated into all areas and exhibits of a zoological park. Imagine the concept ; being able to share an inexpensive or possibly free interactive tool which can promote the idea of your guests actually seeking out the host or education attendants at a zoo exhibit! Couple this with a docent or employee who will have a visitor to these exhibits pausing, interacting, and absorbing a natural history or conservation message much the same way ink permanently absorbs into paper, and you truly have a win/win situation.

I would like to acknowledge the help of the management and my coworkers on the aviary team at Disney's Animal Kingdom for sharing ideas on these guest experience opportunities in our free-flight aviaries. Special thanks as well to the many hosts and hostesses of our Park Operations team who are helpful beyond words in implementing these extra creative opportunities for our guests.

Sacramento Zoo Prints Enrichment Workbook

The Enrichment Workbook of Sacramento Zoo is at the printers right now. If you are interested in a copy please send an e-mail to Sue Johnson (Docent/Volunteer) Sacramento Zoo at: russ_sue@msn.com

They are asking for a \$5.00 donation to cover costs of the book's printing.

The Water Column

By

Dan Conklin, Senior Biologist, Florida Aquarium

Bruce Elkins, Curator of Waters, Indianapolis Zoo

Kevin Shelton, Associate Curator, Florida Aquarium

There are many methods for cleaning the water in an exhibit. These methods can be divided into three basic categories: mechanical, chemical, and biological. Let's first focus on the most apparent type. Getting the visible debris out of the water is mostly achieved by mechanical filtration.

There are many parts of mechanical filtration that we often don't even consider as filtration, but are important to the whole operation. The most basic method is the simple "drop and fill." Here one merely drains some or all of the water in the system and refills with new water. This is simple and requires no special equipment. It does provide good clean water. It is however impractical to empty a tank full of fish. It also wastes water and costs money in water bills. This is especially true if you are using saltwater that had to be mixed from purchased dry salt. This can cost upwards of ten cents per gallon. What we (and our accounting departments) really want to do is save that water and recirculate it.

In a recirculating system the first part of mechanical filtration takes place where the water leaves the exhibit. Skimmers are screens placed to catch large debris (as well as our animals) before it enters the piping and pumps. This keeps the pipes clear of obstructions and the pumps from getting clogged. A pump starved of water from a blockage will quickly burn out. Skimmers can be as simple as a screen over a pipe, or as complicated as large skimmer boxes off a main tank with multiple layers of different sized meshes. These are especially important in open tanks where leaves and such fall into the water. These screens need to be cleaned regularly, depending on debris accumulation, to avoid clogging. There are automatic skimmer screens that continually clean themselves, but they are expensive and still need to be checked for proper operation. A keeper with a pool skim net is also part of the mechanical filtration of any system. This helps to reduce the regularity of checking the skimmers.

The next part of mechanical filtration usually occurs at the pump itself. Most exhibit systems have pumps that incorporate a skimmer basket into the housing. This functions the same way a skimmer in the tank does by trapping large debris. Again these need to be checked regularly. The pump itself is part of the system but does not filter the water. It is merely the engine driving the filtration process.

From the pump the water next enters the filter on most systems. These are vessels that contain a filter media that removes fine particles from the water. On smaller systems these are often pleated fabric in a canister. These can be anywhere from 25 to 250+ square feet of filtering area. They also come in different pore sizes to tailor the filter to your needs. These are usually kept clean by simply removing them from the canister and hosing them clean and bleaching. On larger systems the filter media is usually sand. Large tanks with more than a ton of sand are required on large water systems such as moats and large reef tanks. The water is forced through the sand and particles are trapped in the grains. Again different grain size can be used for this from a coarse sand and gravel mix down to diatomaceous earth. These are cleaned by backwashing. Water is forced backwards through the filter and down the drain to remove the accumulated debris.

There are many other types of filters available with new ones being invented regularly. Filter media

is likewise as diverse. Many home aquariums use filter floss to remove particulate. This is a loose sponge-like material. Sponges themselves can be used as well. The gravel at the bottom of the tank can be a filter. Undergravel filters move water through the bottom gravel and it acts like a sand filter.

Many of these filters also work as part of the chemical and biological filtration sites in the system. These will be discussed separately in future articles.

Ask Dan the Water Man...

Question

How do I raise and lower the pH of otherwise stable tanks?

Answer

There are lots of ways to raise and lower pH but some are safer than others. Typically pH drops over time in an aquarium and it is necessary to buffer or add something to the water to raise and stabilize the pH. For decades aquarists have relied on sodium bicarbonate (baking soda) and sodium carbonate (soda ash) to raise the pH. Today other carbonates and borates are sometimes included. If five aquarists are asked what they use to raise pH you will get five different answers. However their formula will almost always include sodium bicarbonate. I usually use sodium bicarbonate and sodium tetra borate in a 5:1 ratio for fish only marine systems. There are aquarium grade pH buffers (mostly sodium bicarbonate) from different manufacturers and they work just fine. If you want to keep it simple and effective use 5mg/gallon/day. This will raise your alkalinity (a.k.a. buffering capacity) about 10ppm a day and that seems to be a safe rate for pH change. (refer to March AKF Waters Column for relationship) Also, while some aquarists add calcium hydroxide to reef tanks for calcium maintenance, don't use any compounds with hydroxide in it because resulting pH will not be stable.

If the objective is to lower pH then a phosphate based buffer is available in an aquarium grade from several manufacturers such as Seachem, Kent, or a number of others. This is added in small amounts daily until desired pH is attained. After each addition, check the pH the next day to get a feel for how the exhibit water reacts to the additions. Do not use an acid such as hydrochloric acid (HCl) (muriatic acid) because the pH will not be stable. It will drop and then come back up at various rates and that is not good for aquatic animals. The benefit of HCl is in treating new concrete on exhibit (before fish). Wash new concrete with about a 8:1 (water: HCl) solution and this will neutralize the alkaline components of concrete. Handle HCl with gloves and eye protection as it produces nasty vapors when mixed with water and can also burn the heck out of your skin. Also beware of rechargeable water softeners that soften water and consequently lower pH. The problem with these is that they also add sodium to the water. Usually fish that prefer lower pH don't do well with the added sodium. Peat is an old tried and true method for softening and lowering pH but can discolor the water a bit.

Each month we will also be answering a few questions from you. We will try to pick questions that are pertinent to that month's topic. We also welcome feedback from the readers. Questions and comments can be submitted to us by email at: Dan: dconklin@flaquarium.org/ Kevin: kshelton@flaquarium.org/ Bruce: belkins@indyzo.com/ Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602



AAZK Enrichment Notebook Second Edition Revised

The AAZK Enrichment Notebook, 2nd Edition, was designed to be user friendly and to provide the kind of information needed to build a comprehensive enrichment program. The AAZK Enrichment Notebook, 2nd Edition, is a tabbed, 3-inch binder with 213 pages (many of them duplexed) of enrichment information (plus an index) which includes an overview of enrichment, a resources and suppliers list, links to enrichment information, sample enrichment forms in use at various institutions, guidelines for enriching various taxa (reptiles, birds, primates, carnivores, ungulates and bats), risk assessment and safety issues, a browse plant list, a toxic plant list, cookbook recipes, an enrichment idea catalog that includes all entries from the original AAZK Enrichment Notebook plus new submissions, and institutional contacts.

The AAZK Enrichment Committee will be working on a bibliography and a tab has been provided for this future project. A Table of Contents and Index make it easier to access the information. You may purchase the entire binder or just the notebook "guts" to update a previously purchased AAZK Enrichment Notebook. The AAZK Enrichment Notebook was designed to be a "living document" with ample space for future AAZK Enrichment Committee projects and/or other information gathered by you or your institution.

To order, fill out the form below and return with your payment to: AAZK, Inc., Enrichment Notebook, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 U. S. A. Checks and money orders should be made payable to "AAZK, Inc." (U. S. FUNDS ONLY). Allow 4-6 weeks for delivery. If using a credit card, make sure to complete all requested information on form. Prices include Domestic Book Rate Postage. Orders outside the continental United States should add \$15.00 for parcel post surface shipping. Prices are:

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New Species of Camel Discovered in Asia

The United Nations Environmental Programme (UNEP) has announced that a new species of camel may have been discovered in a lost world of sand dunes on the edge of the Tibetan mountains. News of the discovery was released at the 21st session of the Governing Council meeting in Nairobi, Kenya, being attended by representatives of over 100 countries. Experts estimate that the total population of camels is less than 1,000, making them more endangered than the Giant Panda.

Genetic tests on animal remains collected on expeditions undertaken by joint Chinese-British teams have found significant variation between these newly discovered wild bactrian or "two humped" camels and their domesticated cousins. John Hare, the founder of the Wild Camel Protection Foundation (WCPF) told reporters that the scientists performing the genetic tests found a three percent difference in the base pairs between the domesticated and these wild camels. "You have to remember that there is only a five-percent difference between men and chimpanzees. So these wild camels may be a different species never domesticated by humans," said Hare.

The camels are adapted to survive on water bubbling up from beneath the desert, the investigation team discovered. "These camels can withstand enormous physiological stress. Scientists are extremely interested in how their liver, kidneys and lungs can withstand the salt without killing these wild camels," stated a spokesperson for the WCPF. The Foundation is working with the Chinese State Environmental Protection Administration to obtain funding from UNEP for purposes of establishing a reserve to be known as the Arjin Shan Lop Nur Nature Reserve. Urgent action is needed to save the animals from poachers, military testing undertaken by China in their habitat, and gold mining operations.

The wild bactrian camel is currently ranked as highly endangered on the International Union for the Conservation of Nature's Red List but there may be an argument for listing the species as "critically endangered" – the highest ranking of threat for a species. An official for UNEP stated "The camels are probably a unique species, and the two range states of China and Mongolia have a unique opportunity to preserve this species for prosperity". Furthermore, biologists with UNEP stated that "There is indeed genetic variation between wild and domesticated two-humped camels. There are two possibilities – one is that the domestic camel was bred from these wild ones so far back in history. So when we

look at these wild camels we may be looking at the ancestor of the domestic camel rather like the wild dogs which are the ancestor of (domestic) dogs. The second possibility is that the domestic camel we see today came from another species that has disappeared. This would mean that the wild camels found by the expedition in China and the population in Mongolia are totally separate species."

The scientists also believe that it may be possible to cross breed these camels with domestic ones to improve their genetic stock and to enable them to live in harsh salty water environments.

Source: Panafican News Agency via allafrica.com
2 February 2001



Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



Tahrs Get Stay of Execution

In last month's column, we reported on the state of a group of tahrs living on Table Mountain in South Africa. The animals were being killed on the grounds that they were destroying the habitat and endangering native wildlife. The tahrs came to exist on the mountain as a result of the escape of a few animals from the Rhodes Zoo in the 1930s. Tahrs, native to India, are highly endangered in that country.

The South African National Parks and the Public Protector have reached an agreement on a six-month moratorium on the tahr eradication program on Table Mountain, starting immediately. Meanwhile, the Indian government has offered to take the tahrs and a team of Indian veterinarians is preparing to come to Cape Town to assess the situation. Furthermore, a spokesperson on behalf of the South African National Parks has stated that during this time, any group or organization which wishes to try to remove the Himalayan tahrs will be allowed to do so, but they will have to meet the full cost of such an operation themselves.

Concern about the tahrs' genetic status has been raised by the World Conservation Union, which lists the Himalayan tahr as "threatened" in its Red List of endangered animals. A spokesperson for the organization said that if the tahrs were found to be suitable for relocation, they should undergo a very comprehensive health screening protocol to ensure that exotic disease/pathogens were not introduced into the endemic range. *Source: Cape Argus Newspaper 27 March 2001*

Families Refuse to Make Way for Game Reserve in South Africa

The Mpumalanga Parks Board (MPB), which governs a small part of South Africa, is attempting to turn a portion of land within its boundaries into a game reserve. However, the action of the MPB has met with strong interference by some 700 families who "have sworn to die rather than give up their land for a game reserve". The MPB gave the families notice in December 2000 to relocate by the end of March this year, when an electrified fence was to be erected to allow the proposed Mountainlands Game Reserve to be stocked with big game species such as elephants, rhinos and buffaloes.

The Game Preserve is located near the small town of Barberton and MPB's project manager Butch Rossouw states that the reserve would create job opportunities for the locals. Additionally, the project is sponsored by the national Department of Environmental Affairs and Tourism. Rossouw also said that local families' livestock and agricultural plantations would not be compatible with a game reserve.

Another spokesperson for the MPB, Gary Sutter, stated that it was contrary to the MPB's policy to evict people unilaterally without consulting with relevant government departments such as land affairs. "Senior management undertakes to investigate the circumstances surrounding the said notice and implement corrective measures where found to be necessary," he is quoted as saying. Sutter further said that a "transparent and consultative process" has been initiated to ensure that all stakeholders are included in the decision to move the families off the land and develop the game reserve. *Source: African Eye News Service 27 March 2001*

SANParks Denies Sale of Rhinos to Alleviate Kruger's Financial Crisis

The South African National Parks (SANParks) office has denied allegations that 21 white rhinos —

including eight cows and their calves – are being offered for sale to lessen financial difficulties at the Kruger National Park. Conservationists are worried about the welfare of the rhinos since they are being offered for sale to animal traders as well as other zoos by the Kruger National Park that is operated by SANParks.

The biggest concern is that the calves will be separated from their mothers, with the young animals going to a zoo while the cow is sold to trophy hunting concerns. The Kruger Park's contracts of sale do not stipulate that the animals sold may not be hunted. However, a spokesperson on behalf of SANParks said that whoever buys the rhinos will have to make a commitment that they will not be used for hunting purposes.

After concerns about the sale were raised, the SANParks issued its own news release entitled "Statement on the Sale of 21 White Rhinos from the Kruger Park". In sum, SANParks states that (1) it will not allow for separation of calves from their mothers – buyers must purchase both animals for the sale to be complete; and (2) animals will be sold for breeding and will not be hunted for at least a year after purchase. Additionally, SANParks admits that the financial constraints of Kruger National Park are having an impact on both the decision to sell and the price that will be set for the animals.

Further information about SANParks position can be obtained by contacting Dr. Salifou Siddo, Head of Communications, SANParks, telephone (012) 426-5018 or email at Salifous@parks-sa.co.za *Source: South African Star Newspaper 27 March 2001; WildNet Africa News Release 3 April 2001*

Botswana Solicits Review of Elephant Management Plan

The Botswanan government has invited tenders for a consultant to review the country's Elephant Management Plan of 1991. The aim is to update this Plan and produce an "Elephant Conservation Policy and Strategy". According to the tender notice, preference will be given to persons or companies from within the southern African region.

The terms of the tender can be obtained from the Department of Wildlife and National Parks in Gaborone or can be viewed on the government of Botswana's website at www.gov.bw/business/tenders.html *Source: South African Sunday Times 26 March 2001*

Congo's World Heritage Site Threatened by Mining

The World Conservation Union (IUCN) has reported that it is calling for a ban on coltan (*colombo tantalite*) mining that is threatening two World Heritage Sites in the Democratic Republic of Congo (DRC). The IUCN has appealed to the international community to stop buying any coltan that is produced by mining concerns operating in direct contravention of restrictions in protected areas in the DRC. The two World Heritage Sites in danger are the Kahuzi-Biega National Park and the Okapi Wildlife Reserve.

In addition to the damage done by the mining operations themselves, it is reported that over 10,000 miners have moved into the Parks and are largely relying on meat from wild animals (bushmeat) for food. The Kahuzi-Biega National Park and the Okapi Wildlife Reserve are two of the richest and most important parts of Africa for wild species (biodiversity).

A spokesperson for the IUCN, David Sheppard, stated that "Mining, together with the presence of so many people looking for food, is severely impacting the ecology of these sites, and is in flagrant violation of World Heritage principles. Streams and forests are being degraded, the livelihoods of the indigenous people, the Mbuti, in the Okapi Wildlife Reserve are threatened, and wildlife is being destroyed at an alarming rate". According to Sheppard, species such as elephants and the eastern lowland gorillas are currently being hunted. "It is feared that a large proportion of the elephant population in Kahuzi-Biega National Park have been killed as well as a significant number of gorillas, leaving the populations at a dangerously low level."

Coltan obtained from these sites is transported by air and sold to large multinational companies based in North America, Europe and Russia. Coltan is a precious hardening agent for metal used in a range of high tech industries. *Source: WildNet Africa News Archive 20 March 2001*

USDA to Allow Quicker Rescue

An amendment to the federal Animal Welfare Act, effective 2 February 2001, allows the USDA Animal and Plant Health Inspection Service (APHIS) to “allow animals confiscated from situations detrimental to their health to be placed with non-USDA licensed persons or facilities.” This would include humane societies and sanctuaries, which are not under USDA jurisdiction because they are not normally engaged in interstate commerce, and, therefore, not subject to federal regulation/licensing. “With this new regulation,” said Cat Fanciers Association legislative coordinator Joan Miller, “APHIS inspectors will be able to move more quickly and efficiently to remove animals from abusive situations when necessary for their health, and get them into the hands of shelters and rescue organizations that can care for their needs.”

Chances of a sudden rush of USDA confiscations is highly unlikely because, historically, the USDA has confiscated animals only a few times per year. However, USDA-APHIS personnel have stated to news services in the past that confiscations would be more frequent if the agency had more viable options for placement of animals removed from substandard facilities. This rule change may provide those options. *Source: Animal People News March 2001 vol. 10, no. 2*

Home of Spirit Bear Saved

British Columbia has announced a “historic land-use agreement” protecting the home of “Canada’s mystical Spirit Bears - - the rare-snow-white subspecies of black bear living in one of the world’s oldest coastal rainforests” reports the Toronto Globe and Mail in early April. Creation of the sanctuary is the culmination of an international campaign and boycott to protect the Great Bear Rainforest “known for its thousand-year-old cedar and spruce trees.” The accord, which does allow logging in some areas of the forest, brought together logging companies, environmentalists, First Nations, and the BC government to seal the largest rainforest conservation measure in North America. *Source: GREENlines Issue #1355 4/5/01*

First Evidence of Condor Breeding Since Release Observed

Biologists have found the first evidence that California condors may once again be breeding in the wild reports the San Francisco Chronicle on 28 March. Although the “big white egg,” found in the Grand Canyon, was cracked biologists are now “hoping the female will lay another egg to replace it.” North America’s “largest bird of prey” was nearly extinct when the last 27 condors were “captured for survival breeding” in 1987. Thanks to an ongoing reintroduction program there are now 25 birds living wild in Arizona and another 24 in California. *Source: GREENlines Issue # 1349 3/30/01*

Earth’s Natural Ecosystems Down One-Third

A new study the Living Planet Report 2000 has found that over the last 30 years “the state of the Earth’s natural ecosystems has declined by about 33%” while the “ecological pressure of humanity,” our “ecological footprint,” has increased 50% and now exceeds the “biosphere’s regeneration rate” say GREEN sources 2/27. The report’s “Living Planet Index,” which fell 33% between 1970 and 1999, measures the biodiversity of forest, freshwater, and marine ecosystems. The report is available on line <http://panda.org/livingplanet/lpr00/> *Source: GREENlines Issue #1334 3/9/01*

Michigan’s Eagle Population Soars

A new survey of Michigan’s bald eagles has found that the population has nearly “doubled” from 782 to 1,510 in the last year says the Detroit Free Press. First listed as endangered in 1967, eagles have rebounded from the 30 counted in MI’s first winter survey in 1979 and are now being seen in many urbanized areas, including near a “Big Boy restaurant in Cheboygan.” *Source: GREENlines #1335 3/12/01*

The Saga of Jasai

By Michelle M. Willette, DVM
Gladys Porter Zoo, Brownsville, TX

Gladys Porter Zoo, along with Texas A & M College of Veterinary Medicine, recently made history by being the first institutions to attempt "colic surgery" in a rhinoceros. And even though the animal was eventually euthanized, great strides were made in regards to future treatment options for these impressive beasts.

Jasai, a five year-old Asian rhino (*Rhinoceros unicornis*) was housed "behind the scenes" after his arrival earlier this year, while his outside exhibit was being renovated. He was little trouble except that he turned into a "teenager", charging around the barn and skidding into rails, thereby forcing us to place the barn off limits to everyone except his keepers. Outside of his quarantine exam and normal preventive medicine procedures, he required little attention from the Animal Health Department. That medical anonymity came to an abrupt halt. An animal as large as Jasai produces a lot of feces overnight and it was obvious and alarming to see one morning that Jasai had produced very little. Nor had he eaten or drank his normal amount of food and water.

In zoological medicine we deal with an enormous number of species of animals, many we know very little about. Often we extrapolate from the closest species we do know something about. In the case of rhinoceros, that species is a horse. Anatomically and physiologically, a rhino is most like a horse. Any of you who are horse owners are aware of a condition called colic. Equine colic is an abnormal state of the horse's digestive system. For some reason the gut just quits moving. At one time or another, just about everything has been thought to cause colic. Usually it is due to some type of dietary insult; often the cause is undetermined. Except in its mildest form, equine colic is a serious condition and left untreated, is generally fatal. Even with treatment, there is a high mortality rate, especially for those horses which require surgery.

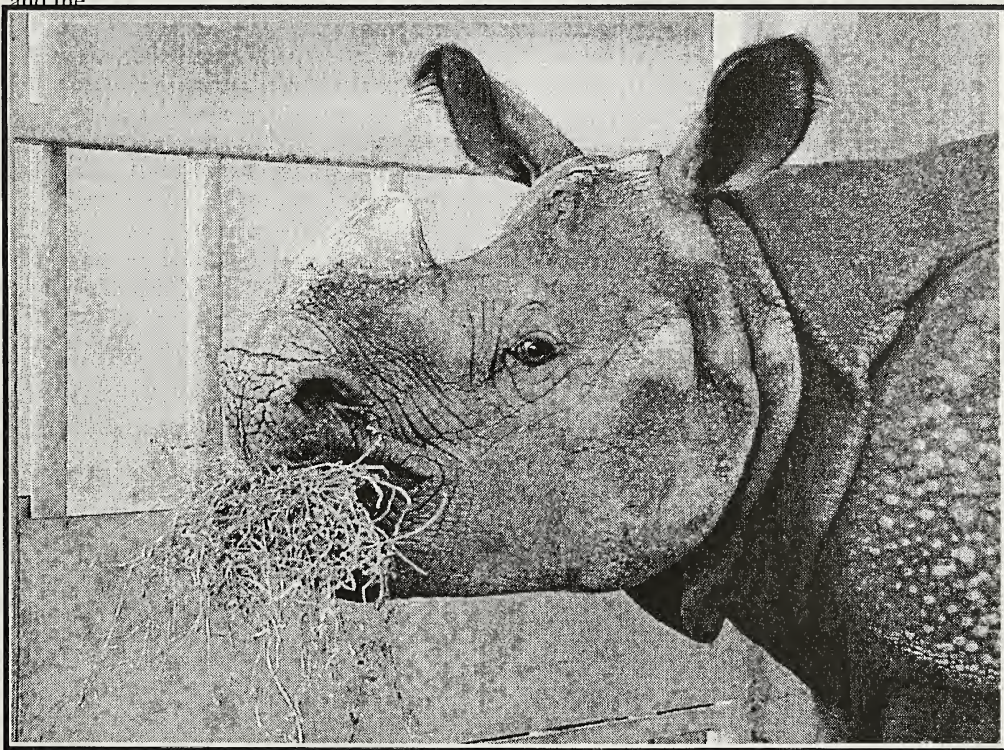
Treatment usually centers around massive fluid therapy using intravenous catheters, emptying the stomach with a stomach tube, often subsequently instilling a lubricant such as mineral oil, giving a rectal enema in an attempt to loosen any proximate fecal material, and the administration of various drugs to relieve pain, promote intestinal movement, and prevent ulcers. If medical therapy does not resolve the problem, or tests indicate that the gut has been compromised, surgery is attempted. During surgery, the affected portion of the gut is located and corrected or removed, the remaining intestines are emptied of their contents, which by now have become dried and compacted, the abdominal cavity is rinsed out, and the animal is sewn up. Unfortunately, horses are somewhat delicate, especially when it comes to their stomach and abdomen, and many fail to survive.

On the morning of 4 October 2000, the general curator reported that Jasai did not pass any feces and was off his feed. Over the next several days diagnostic tests were performed and a diagnosis of colic was made; we were unable to determine any underlying cause. Jasai was treated with the help of the local equine veterinarian as you would any horse, with several inordinate exceptions. First of all, most horses are handleable. Even in a specially designed rhino chute, Jasai required sedation with powerful drugs just to be touched, even more to allow passage of stomach and rectal tubes. Second, the average horse weighs 1000 lbs. (454 kg). Jasai weighed close to 4,000 lbs. (1814 kg) The quantity of drugs needed to be administered taxed all of our supplies, including all the local pharmacies. Lastly, horses have a thin coat of hair and easily accessible veins; Asian rhinos are covered by large, thick plates and have only tiny veins in their ears and lower legs. Even though Jasai was cooperative, as sick rhinos go, he was still a difficult patient.

Jasai's colic failed to resolve with medical therapy and a decision was made to transport him to

Texas A&M University of Veterinary Medicine for probably surgery. As with the rhino chute, there are specially designed crates and trailers to move extremely large and powerful animals and one such animal transporters answered our emergency call, driving night and day in order to move Jasai in the shortest amount of time. Once at the veterinary school, additional diagnostic tests and medical therapy ensued. The tests continued to indicate an intestinal impaction. It quickly became obvious that it was impractical to continue to try to treat Jasai medically. This was both from a logistical point of view, in the amount of fluid he required – which we were frustrated in our attempts to supply – and the fact that all work on Jasai required sedation which further compromised the function of his intestines.

It was decided to take Jasai to surgery. It was a “live or die” kind of decision; it would force some kind of resolution. But could we take a rhino to surgery? Several rhinos, mostly Asian and Sumatran rhinos, have been afflicted with colic. But they have either been very mild cases, or so severe that the animals died before any intervention could be attempted. There had been only one other abdominal surgery attempted on a rhino and that was for an ovariectomy (a spay) due to a tumor. That animal died shortly thereafter due to a complication of the spay operation, but the anesthesia and abdominal procedures were considered a success. But could we take Jasai to surgery? Once again the logistics of the situation were daunting: handling a wild and dangerous animal in an academic and hospital setting; moving a two-ton sleeping animal; the sheer quantity of fecal material that would have to be removed from the intestines; and the



1.0 Indian rhino Jasai, a resident at the Gladys Porter Zoo in Brownsville, TX was the first rhino to undergo “colic surgery”. (Photo by Elizabeth Garcia)

length of time that he would have to be under anesthesia. All indicated a very poor prognosis, but we felt it was Jasai’s only option.

On 11 October 2000, with the help of a monstrous forklift, Jasai’s transport crate was snuggled

up against a padded equine stall where he was sedated and allowed to go to sleep. Two three-ton hoists were attached to his legs and he was moved into the surgery suite where he was intubated, monitored, prepped, and draped just like a human surgical patient. The room was awash with people, each performing their specific task on the rhino's behalf. Jasai's abdomen was opened and his intestines cut into and emptied. It was hot and hard work and took hours; the surgeons traded off, almost "falling into" their patient his body was so deep. There was no obvious cause for Jasai's colic, just yards and yards of dry fecal material. Once again we had trouble providing enough fluids to Jasai due to the size and nature of his veins. The anesthesiologist worked diligently, adjusting anesthetics and heart medications as needed. After nine long hours, the surgery was finished and the hoists were again used to move Jasai back into the recovery stall. All of us who have witnessed long procedures on large, wild animals knew he would never stand up; it was just too much. But after disconnecting all the anesthesia equipment and administering a reversal agent, Jasai stood up almost immediately! He was still groggy and tired and laid down again after a few minutes, but he had stood!

Almost as much of a surprise, Jasai was still alive the next morning. He even ate and drank a small amount and there was much elation, congratulations, and good expectations. But he did not continue to progress, and we once again faced the same obstacles in his care that we had before the surgery. It was decided to transport Jasai back to the Gladys Porter Zoo where he could be offered more extensive treatment with the use of the rhino chute.

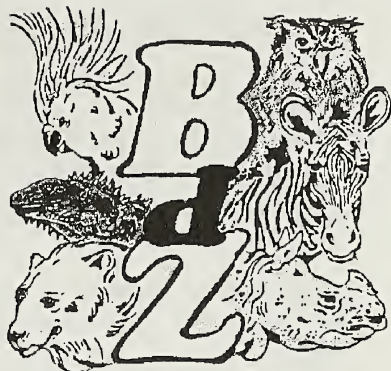
Upon returning home, Jasai once again ate and drank a small amount but refused more; his weight loss had become noticeable. Over the next week we continued to work with Jasai, luckily without the use of sedatives. We were able to determine that at least a portion of his intestines would respond to prokinetic medications and begin to contract, but he did not pass any fecal material. Unfortunately, his attitude rapidly deteriorated on 17 October. Blood work indicated that his kidneys were failing and we suspected that he had a bleeding ulcer in his stomach. The decision was made to euthanize Jasai.

When an animal dies at a zoo, the veterinarian performs a necropsy, the animal equivalent of an autopsy. Like everything else involving Jasai, his necropsy required many staff members and many hours. The necropsy showed that all of his incisions all healed normally; the surgery had been "successful". Unfortunately, his kidneys had failed and he had a large, bleeding ulcer in his stomach. Lastly, it appeared Jasai's digestive tract never began functioning again. His stomach was full of food and water but it did not move down into his intestines; yet again, no underlying cause could be found. Jasai's tissues have been sent off to a pathologist in the hope of learning something more. Jasai's remains have been buried on the zoo grounds.

I have been at the Gladys Porter Zoo for over a decade now. And while this same effort has been put into other animals requiring extensive surgeries or medical specialists, I cannot recall a case that has required as many resources as Jasai's. We should be proud of our efforts and of the facts that, despite the zoo's limitation of size and location, we were able to provide Jasai the very best that veterinary medicine has to offer, as well as having advanced the frontiers of care of large megavertebrates. Jasai's saga has already been discussed among rhino holding institutions. Scientific papers will be published to disseminate specific information covering a broad range of topics. And the next time a rhinoceros requires major surgery, there will be a greater knowledge base upon which to make decisions, which will greatly improve the odds for success.

(Editor's note: This article is reprinted here from ZOO NEWS, Vol. 30, Issue 4, Fourth Quarter 2000, with the kind permission of the Editor and the Author. ZOO NEWS is a publication of the Gladys Porter Zoo and Valley Zoological Society, Brownsville, TX)

German Zoo Keepers Association - a profile



In January 1988 a first meeting of approximately 50 keepers who work in zoos in North Rhine – Westphalia was held. This is a part of Germany where a lot of big zoos are located. From then until the present we now hold regular meetings once a month. These feature a slide or video presentation or discussions.

In spring of 1990 the first issue of “Arbeitsplatz Zoo”, the German Zoo Keeper Magazine, was published by a team of five keepers working at the Cologne Zoo. In October 1991 the first workshop, in this case for monkey keepers, was hosted at Hannover Zoo, envisioned and organized by the monkey keeper Roland Wolf. Around 70 keepers from different zoos participated in this workshop. In October 1992 the second monkey workshop was held at the Cologne Zoo. There were 120 delegates at this meeting and a small group began talking about a zoo keeper association.

In December 1992, six keepers from different German zoos met with the chairman from the Stichting Harpij, the Dutch Zookeeper Association, in the Netherlands to talk about their organization. In February of 1993, about 40 keepers from different German zoos gathered at the Frankfurt Zoo to found the Berufsverband der Zootierpfleger, the German Zoo Keeper Association.

Today the BdZ has 520 full members (working in a zoo as keepers) and 60 associated members (Friends of Zoos, students, curators, directors) who have the same rights as full members except for being able to vote for the chair of the association.

The goals of the BdZ are as follows:

- To push the knowledge of keeping animals in captivity to a higher level
- A better understanding of the work the zoo and the people working there do in the public education concerning the conservation the nature
- Exchanging information about animal keeping

To achieve these goals we have since 1992 organised different workshops usually each one on a two – year interval basis:

- Monkey keeper workshop six times with 600 participants
- Bird keeper workshop five times with 200 delegates
- Carnivore keeper workshop four times with 150 delegates
- Aqua- and Terraristik Workshop five times with 120 people
- Hoofed stock keepers workshop four times with 200 people
- Workshop for endangered farm animals four times with 100 people
- Enviromental Enrichment workshop five times with 450 participants
- Enviromental Enrichment for great apes together with Dr. Jane Goodall
- Aquatic Mammals Keepers three times with 300 people
- Hoof trimming course six times with 100 participants
- Animal Transportation three times with 120 people
- Meeting keepers and education staff three times with 200 people

- Workshop about Nutrition twice with 120 participants
- Studbook keeping/ Population management one time with 20 participants

One of the first activities of the BdZ was to initiate an annual behind-the-scenes program for the public in as many zoos as possible. It is now a tradition and this year it will be for the 8th time.

These are the publications of the BdZ:

- German Version of the enrichment catalogue from Copenhagen
- Enrichment Theory and Practice
- Environmental Enrichment for great apes (from summer 2001, also in a English, French and Spanish version available)
- Training for zoo animals - training guidelines

These nature conservation projects are supported by the BdZ with more than 1000 German Marks:

- Teaching Vietnamese Keepers in Germany
- "Save the Drill" by Roland Wolf
- Help for the Zoo Tsimbazaza in Antananrivo / Madagaskar von Mario Perschke
- "Yachu Pacha" Society to save the aquatic wildlife in South America
- Pheasant Conservation in Thailand
- "Cuc Phuong" a project of the Zoologischen Gesellschaft für Arten- und Populationsschutz München
- Projekt "Black Iguana" des Zoo Halle
- Chimpanzee Conservation by Jane Goodall Institute

*Submitted by Carsten Knott, International Liaison for BdZ
Keeper at the Frankfort Zoological Gardens, Frankfort, Germany
For further information, you may contact Carston at:
Carsten.Knott@t-online.de*

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Please let us know when you change your address! It costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!

Declining Polar Bear Population Spared 2002 Hunt

From car license plates to government logos, the polar bear is the lasting symbol of Canada's newest territory, Nunavut. But numbers of the animal have plummeted in one region, according to the territorial government, which has cut hunting quotas this year and banned hunting in 2002. Established as a territory in April 1999, Nunavut accounts for 1.9 million square kilometers, nearly one fifth the size of Canada. Sizable polar bear populations are found in six regions of the territory but in one - M'Clintock Channel - numbers are much smaller than previously thought.

Concerns over hunting began last year, when a three-year study by Nunavut's Department of Sustainable Development indicated that M'Clintock Channel's bear population, previously thought to be near 700, was actually less than half that. The study estimates there are 288 bears in the region. At present hunting levels, the bears would be wiped out in a decade. Even without hunting, their recovery will be slow, the study indicates. "The population is showing classic signs of what it would look like if it were depleted under hunting pressure," said Steven Atkinson, the Director of Wildlife with the Department of Sustainable Development. "The population is in trouble in M'Clintock Channel."

Nunavut's government cut this year's hunting quota in M'Clintock Channel from 32 bears to 12, with no hunting allowed in 2002. On 10 January, the United States Department of Fish and Wildlife announced it will ban imports of bear hides from the area. Under the U.S. Marine Mammal Protection Act, bear skins may only be imported from areas of Canada that have healthy bear populations.

M'Clintock Channel is located east of Victoria Island in the north-central Kitikmeot region, high in Canada's Arctic north. Polar bears there are hunted by residents of Cambridge Bay, Gjoa Haven and Taloyoak. They are taken for local use and as part of lucrative guided sport-hunts. A recent edition of *Nunatsiaq News*, which serves Nunavut from the capital Iqaluit, featured the story of nine-year-old Levi Inookee, who killed his first polar bear on a two-day hunting trip with his grandfather earlier this month. Hunting is a rite of passage for many Inuit children, one of the many reasons why adult hunters are concerned for the future. Some disagree with last year's research. Abel Aqqaq, head of the Taloyoak Hunter's and Trapper's Organization, doubts the department's findings. The study, he said, "has not been done in a very proper way." "We see a lot of bears out in the M'Clintock Channel area. We know the numbers are still fair for hunting," he said.

In late December 2000, at the Kitikmeot Hunter's and Trapper's Organization meeting in Pelly Bay, delegates voted against voluntarily imposing a quota on themselves. The organization initially did not disagree that conservation is needed. In talks with the Nunavut Wildlife Management Board in December, it agreed that 12 is a reasonable quota for the 2001 season. The cut in quota and the U.S. ban will be a severe blow to the sport hunting business, Aqqaq said. Around two thirds of Taloyoak's polar bear quota goes to sport hunters, almost all of whom are Americans. For a chance to shoot a bear, each U.S. hunter pays between C\$15,000 to C\$20,000 (US\$9,928 to US\$13,328). The money provides the guides with a substantial part of their annual income, and boosts the economies of their communities.

But if U.S. sports hunters cannot bring back bearskin rugs from M'Clintock Channel, they will likely go hunting elsewhere, Aqqaq said. There are five other polar bear populations in Nunavut from which the U.S. government permits the importing of hides. Nunavut's minister of sustainable development Olayuk Akesuk, who announced the cuts, said he will visit Cambridge Bay, Gjoa Haven and Taloyoak to discuss economic alternatives to the beleaguered bear hunting industry.

"That's why I'm travelling to these communities, to check to see how we can help the communities or the hunters," he said.

Whether the hunting moratorium will continue beyond 2002 will depend on further data gathered by scientists and Inuit hunters, said Ben Kovic, chair of Nunavut's Wildlife Management Board.

from Environmental News Service (ENS) - published in cooperation with Nunatsiaq News: <http://www.nunatsiaq.com/nunavut/index.html>



*By Kayla Grams, USGS, Lovell, WY
and Jan Roletto, Columbus Zoo*

The following are examples of environmental enrichment ideas at Potter Park Zoo, Lansing, MI. They were designed and implemented by zoo interns, Katya Woloschko and Rebecca Harry, both students at Michigan State University.

Tamarins: Exhibit modification of the tamarin exhibit, including rearranging already existing perches and the addition of grapevine to allow the tamarins access to previously unattainable locations of the exhibit and to increase climbing surface area.

Rhinos: A 55-gallon barrel filled with water was placed in their outdoor exhibit for an object to manipulate and play with. Water was chosen because it provided unpredictability in movement, stimulating the natural curiosity of the rhinos.

To foster the relationship between rhino and keeper we periodically bathed, brushed and hand-fed each rhino. This one-on-one interaction provided emotional and physical stimulation that made the powerful rhino easier to work with.



Black Rhino

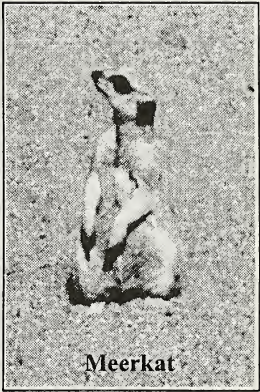
To provide for variety in diet, various types of browse were given to the rhinos daily. We found the

following species to be a favorite of the black rhinos: crabapple, grapevine, tulip poplar and aspen.

Meerkats: The exhibit was lacking aesthetic appeal, so natural tall grasses were planted throughout the exhibit. This also served as enriching for the meerkats by providing a hiding place for scatter food and smelt. As the meerkats were searching for the different types of scatter food, they proceeded to dig underground tunnels beneath the roots of the grasses.

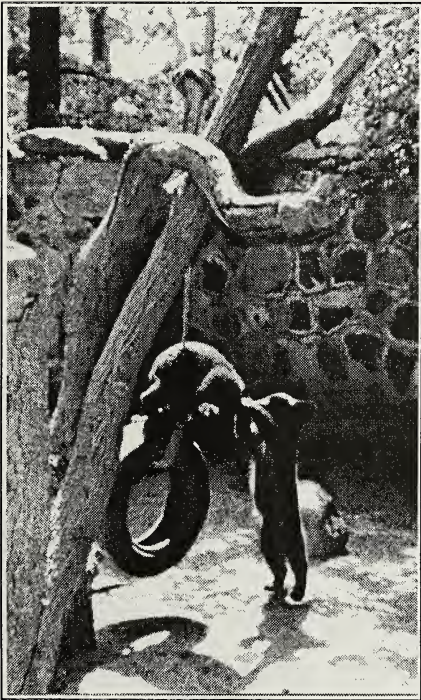
Already present, hollow logs were rearranged to provide a change of environment. The meerkats immediately began to create a new network of tunnels under the logs. This kept them occupied for days.

Cats: Fishing Cats in the wild dive down beneath the surface of the water to catch fish. We wanted to recreate this for our captive cats. We placed various fish in their pool, which is approximately two feet in depth. They eagerly jumped in the water to obtain the fish.



Our fishing cats are extremely shy and very fearful of visitors. We wanted to create a safe place for the cats to hide when scared. We loosely attached a burlap bag to an already existing elevated platform. They frequently crawled under it, like a housecat hides under a blanket. This provided them with security they had previously lacked.

Many attempts were made to interact with the cats to rid them of their intense fear of man. We successfully coerced them into playing with us. We used peacock feathers as lures and a pulley rope with toys fastened to the end. Eventually curiosity got the best of the cats. They approached the lures cautiously and began to play. By the end of the summer significant changes in their behavior were observed.



Black Bear Cubs

Bears: These playful, curious cubs are bursting at the seams with energy. Much of their time is spent playing with one another. However, as they aged, we wanted to direct their energy to new activities when they grew tiresome of one another. We froze water in large five-gallon buckets and placed these in their pool. They tirelessly attempted to pull them out of the pool. Just when they thought they were going to succeed, the blocks would slip through their paws time and time again. This entertained them until the moment the block melted.

Children's plastic hats were purchased at a garage sale. A fireman's hat and a hardhat were given to the cubs. These objects consumed all their attention. They competed with one another all afternoon ignoring their first two meals and were consumed entirely by the toys.

Photos provided by the authors

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment,

Visit the AAZK Enrichment Website - www.enrich.org/aazk or
to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich

ATTENTION ARTISTS !!

Deadline Extended To Submit Your Artwork!

****Enrichment Options ART Contest****

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!!

The logo should be **Crisp, black and white, and clear!**
Note the size in the *Animal Keepers' Forum*. The logo should be no larger than it.
You may include the Enrichment Options title into the picture, or without.
Submissions should be black pen and ink for better quality.

Deadline for submissions is July 1, 2001. Be creative. You can send your submissions to the AAZK Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn: Enrichment Options Art Contest

Detroit AAZK Chapter

New officers for 2001 are as follows:

President.....Barbie Kellner
Vice President.....Patti Rowe
Secretary.....Erin McEntee
Treasurer.....Amy Figlioli

Chapter News Notes

Because the Detroit Zoological Institute is composed of three different sites, in addition to the officers, we have also elected representatives from each. They are:

Belle Isle Aquarium Representative.....Scott DePalma
Belle Isle Zoo Representative.....Cher Uppleger
Detroit Zoological Park Representative.....Angel Mitchell

This year is looking good! Along with improving on activities from last year, we have many new projects.

Our Bowling for Rhinos committee has been formed and a date set for 8 June 2001. Our Chapter is hosting the silent auction at the AZA Regional Workshop being held at the Detroit Zoo, and we have a committee working on zookeeper and aquarist involvement in our institute's web page.

We have formed our own Chapter Animal Behavior Management Committee and host monthly presentations with guest speakers on animal behavior topics.

--Barbie Kellner, President

Puget Sound Chapter AAZK

The year 2000 was a very good year at the Woodland Park Zoo for our AAZK Chapter. Many projects were undertaken and a lot accomplished for conservation. Our Holiday Silent auction raised a record total of over \$8000.00. This is the Chapter's main source of funding for support of its conservation projects. This year's conservation donations included support for:

- National AAZK for their "Endowment Fund".
- The Wildlife Conservation Society of Indonesia's Hornbill Nest Adoption project
- Tapir Conservation in Ecuador.
- Production of a captive husbandry manual for captive Sun Bears in Cambodia.
- Funds to buy a C.E.S. Conservation Parking Meter for the Glen Oak Zoo in Peoria, IL.

In addition to conservation projects, the Chapter also funded registration of keepers at the AAZK, AZA, IAATE and Giant Panda Conference. Through the Cleveland Metroparks Zoo, we also provided money for an international keeper to attend the AAZK conference in Columbus. We were also able to buy several books and videos for different areas of the zoo. The disbursement of conservation fund procedure was reviewed, and a committee formed to prioritize causes to which we donate.

One of our other accomplishments was hosting the NW AAZK Summer Solstice celebration in June. This continued the tradition of NW area zoos and aquariums getting together for a celebration of our long summer days. Tours, games, food, drink and keeper camaraderie all made for a fun event. We also had a pizza and bowling party which was successful, fun, and a good way to explore the possibility of undertaking a BFR event next year.

Newly elected officers for 2001 are:

President.....Heidi Frohring
Vice President.....Tina Mullett
Secretary and Chapter Liaison.....Tom Aversa
Treasurer.....Roz Sealy

--Tom Aversa, Chapter Liaison



New England AAZK Chapter

We have started 2001 with a very successful Bowling for Rhinos event. We have raised over \$2100.00!

We have also decided to change our Chapter name from "Metro Boston" to the "New England" Chapter. Although we largely represent Zoo New England, we have long enjoyed the participation in events and friendship of such institutions as New England Aquarium, Buttonwood Zoo, Capron Park Zoo, Roger Williams Zoo, Beardsley Zoo and others. We hope this change in name will better reflect these institutions, and encourage their increasing involvement in Chapter activities. Anyone in the New England area interested in getting involved, please call (617) 989-2081. We would like this Chapter to represent all of New England!

The Year 2000 was a record-breaking year of fundraising for our Chapter. Donations were made to the AAZK Endowment Fund, World Parrot Trust, Club Tapir, Bat Conservation International, and of course Bowling for Rhinos. We were also able to help a representative of Zoo New England visit the Lowveld Wild Dog Project at the Save Valley Conservancy in Africa.

In late June, we will be hosting the Third Annual Moth Ball. This event is creative black tie, and includes a silent auction. Any Chapter or institution able to donate items, T-shirts, etc., would be greatly appreciated. Please call the number above, or email at kciano@mindspring.com. Last year we had a blast and raised over \$3800.00 for conservation!

Finally, elections were held and Chapter officers for 2001 are as follows:

President..... Katie Roberts
Vice President..... Nikki Petersen
Treasurer..... Ross Mirabito
Secretary..... Ian Ives
Chapter Liaison..... Kimberly Ciano

Wishing everyone continued success in 2001, and we will see you in Toronto!

--Kimberly Ciano, Liaison

What's Your Chapter Been Up To?

Do you have new officers? A successful fundraiser? A new logo? Be sure and send in your latest Chapter News to share with the AAZK membership. We want to hear about all the great activities and projects you are involved with, including conservation efforts and professional development.

Attention
Professional AAZK
Members!!
Have you returned
your election ballot?

Deadline is
1 June 2001

MOVING?

Please let us know when you change your address! It now costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!



Book Review

Bears of the World

By Lance Craighead

Voyageur Press - 2000

123 N. 2nd St., Stillwater, MN 55082

ISBN: 0-89658-503-4

Hardbound \$29.95

132 pgs., 80 color photos

*Review by: Elizabeth Larsen, Primate Keeper
Utah's Hogle Zoo, Salt Lake City, UT*

Bears of the World, by Dr. Lance Craighead is a survey of the eight extant bear species. The intent of this book is not to be a field guide, or an index, but a stimulating discussion of the histories of bears through scientific facts. With this he offers what he feels is the best explanation for the diverse traits seen in the extant bear populations.

Accompanying many beautiful photographs, the author informs us of many facets of the natural history of the Grizzly, Polar, American Black, Asiatic Black, Sun, Sloth, and the Spectacled Bears as well as the Giant Panda. With each species he discusses their ways of life, their evolution from their common origin, as well as their subsequent adaptations, relationships with humans, and conservation pressures facing them. In addition, maps showing each bear species' distribution are provided.

The book provides insight into the lives of bears through Dr. Craighead's many personal experiences with bears as well as his professional commitment to studying and conserving them. I found the information to be presented in a manner that is scientific, interesting, and effortless to read. The author addresses controversies within the scientific community, such as how the Giant Panda should be placed taxonomically, and how genetic evidence shows they are most closely related to bears. In addition, he provides compelling arguments and answers to the many unanswered questions he addresses.

To the bear enthusiasts, whether they are zookeepers, educators, or otherwise, *Bears of the World* will be enriching to their libraries.

Flying Foxes, Fruit And Blossom Bats of Australia

Written by Leslie S. Hall and Greg Richards; Illustrated by Louise Saunders

Published by The University of New South Wales Press Ltd and

Krieger Publishing Company, 1725 Krieger Drive, Malabar, FL 32950-3323 USA.

ISBN 1-57524-175-7

160 pp, 26 color plates, 8 bl. & w. photos,

20 bl. & w. figures, 2 range maps, an appendix of native plants utilized by Australian megabats, and a glossary of scientific terms.

*Review by Dana LaBlanc, Animal Manager
The Lube Foundation, Inc., Gainesville, FL*

After the 2000 Summer Olympics in Sydney, Australia there has certainly been a significant rise in the interest in the land down under, its beauty, and its unique wildlife. This year, keepers who will be attending the 2001 International Enrichment Conference at the Taronga Zoo, will have a special chance to see the flying foxes of Australia. These large *Megachiroptera* (megabats) are quite different from

our native insect-eating bats in North America, which belong to the suborder *Microchiroptera* (microbats). Few zoos in the world manage any of Australia's thirteen megabat species, but in North America, grey-headed flying foxes (*Pteropus poliocephalus*) can be seen at the Woodland Park Zoo, the Boston Science Center, the Toronto Zoo, and at the Lube Foundation, Inc. There are few books that are dedicated to megabats, which consists of 42 genera and 166 species, so this book: Flying Foxes, Fruit And Blossom Bats of Australia will be a valuable reference to anyone wanting to know more about these large flying mammals.

Authors, Les Hall and Greg Richards are veteran bat biologists who have special skills with writing in a clear and easy to understand manner. They cover the identification and distribution of megabats in Australia including the bare-backed fruit bat (*Dobsonia magna*) and little red flying fox (*Pteropus scapulatus*). Both of these species have special adaptations to survive in their environment such as slow flight or being nomadic. The authors also cover megabat anatomy and physiology and compare it to that of birds, pterosaurs and humans. Special chapters have been dedicated to the life cycle, behavior, reproduction, feeding ecology, migration, health, conservation and rehabilitation.

Several interesting topics are highlighted such as observations of adult male flying foxes shepherding groups of recently independent juveniles. These adults warn the young of impending predators and escort them on their initial group foraging expeditions. Potential predators include crocodiles who will catch bats as they glide down to the rivers to drink, large pythons who climb roost trees, or birds of prey like white-bellied sea eagles (*Haliaeetus leucogaster*) and hawk owls (*Ninox strenua*) who attack them in flight or when feeding in a tree. Several man-made obstacles such as power lines and barbed-wire fences also kill thousands of flying foxes yearly. This book also covers current conflicts between flying foxes and humans such as habitat destruction, raiding of fruit crops and urbanization of camps, which make conservation and management difficult.

For those who are interested in the wildlife of Australia or who have an interest in bats this book would make an excellent addition to your library. If you are looking for books that have a similar focus, you may want to look for "Australian Bats" by Sue Churchill and "Bats of Papua New Guinea" by Frank Bonaccorso."

Interesting Websites to Check Out

Association of Zoological Horticulture at <http://www.azh.org>

Standards for Zoos, circuses, other exhibited animals at <http://www.agric.nsw.gov.au/reader/1218>

Disney's Animal Kingdom Animal Enrichment Program site at <http://www.csew.com/enrich/>

Zoo Careers, Job Openings at <http://members.tripod.com/~Sciurus/index.html>

Abby's Menagerie (comic book) at <http://www.abbysmenagerie.com/>

Environmental News Service at <http://ens.lycos.com/ens/jan2001/2001L-01-17-02.html>

African Elephant Database at <http://www.chebucto.ns.ca/~drigby/eli3.htm>

Elephant Manager's Association at <http://www.indyzoo.com/ema/default.htm>

A Checklist of Mammals of the World at <http://www.interaktv.com/MAMMALS/Mamtitl.html>

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks / AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@kscable.com< We are no longer located at the Topeka Zoo, so please note new address!*

The following positions are available at Butterfly Pavilion located in Myrtle Beach, South Carolina. For any of the positions fax, mail or e-mail letter and resume to: Butterfly Pavilion, 1601 N. Oak Street, Suite 103, Myrtle Beach, SC 29577; Attn.: Bill Todd, Fax: (843) 839-4452; or e-mail billtoddjr@yahoo.com. Please indicate the position that you are applying for.

CURATOR OF ENTOMOLOGY... This position reports to the Director of Science/Husbandry and is responsible for overseeing acquisitions/dispositions, containment, husbandry, propagation, exhibitry, staff hiring, training, and safety. The successful candidate will also serve as the USDA Containment Administrator for the 22,000 square foot fully enclosed butterfly pavilion and Nature Zone Discovery Zone. Other responsibilities will include management of departmental budgets, conservation, education and research. A BS in biology, zoology or related field and a minimum of three years of lepidoptera and/or arthropod experience preferred. This full time benefited position is open until filled, salary commensurate with experience. Supervisory experience is a must. EOE.

The following keeper positions are full-time positions with benefits. All positions require strong public speaking skills to participate in keeper presentations, educational programs and interact positively with our guests.

AVIAN KEEPERS ... (Several Positions) Responsible for the daily care and maintenance of a large and diverse collection of psitticines and raptors. Duties include daily care and feeding, exhibit cleaning and maintenance, environmental enrichment, record keeping, and behavioral training. A BS degree in biology or related field and one year paid experience working with birds preferred. Raptor experience a plus. EOE. **Position closes June 7.**

HERPETOLOGY KEEPERS... (Several Positions) Directly responsible for the care and maintenance of a diverse group of reptiles and amphibians. Duties include daily husbandry, exhibit maintenance and cleaning, observations, and record keeping. A BS in biology or related field and one year paid experience with reptiles and amphibians preferred. Arthropod experience a plus. EOE. **Position closes June 7.**

ZOOKEEPER ... Currently accepting applications to fill mammal and avian positions at either the Nashville Zoo at Grassmere or the Nashville Zoo's Breeding Facility. Qualified applicants will have two years of experience in exotic animal care and a college degree in zoology, biology or a related field (or the equivalent combination of education and experience). Responsibilities include all areas of animal husbandry including food preparation, animal observations, medical treatment, capture and restraint, enrichment and training programs, exhibit maintenance and repair, record keeping and data collection. Groundskeeping as needed and the ability to operate light equipment. Applicants should have excellent verbal and written communication skills and a willingness to interact positively with the public and zoo staff. Resumes must be received by June 1, 2001. **Contact Pete Riger**, Nashville Zoo at Grassmere, 3777 Nolensville Road, Nashville, TN 37211. (615) 833-1534 **ext 51** or fax to (615) 746-3908. EOE.

CURATOR OF BIRDS ... The International Crane Foundation, located in Baraboo, WI, has an immediate opening for a Curator of Birds. Applicants should have a graduate degree or equivalent experience in biology, ecology or related field. Seven year's relevant experience with at least four

years in a supervisory position required. Requires experience with bird behavior, captive propagation, wildlife conservation, and avian research design, implementation, data management and analysis. Excellent writing and verbal communication, team building, people management, and relevant computer skills are required. This position involves significant outdoor work in all kinds of weather. The Curator oversees the care and breeding of ICF's captive flock, assists in the reintroduction of endangered cranes into the wild, develops research, assists in the training of colleagues, and supports public visitor programs. This is a full-time position with a competitive salary and benefits. To apply, submit a resume and cover letter to Peter Murray, International Crane Foundation, P.O. Box 447, Baraboo, WI 53913-0447, fax: 608-356-9465, or email to pmurray@savingcranes.org. AA/EOE

The Aquarium of the Pacific (Long Beach, CA) has two (2) openings in the Bird Department:

AVICULTURIST / SEA BIRDS...requires Bachelor's degree in biological sciences or related field. Sufficient quality and quantity of equivalent experience will be considered as substitution for degree. Must have a minimum of two (2) years experience with the husbandry and biology of seabirds (puffins in particular). May consider someone with three or more years working with penguins as alternative experience. Responsibilities will include husbandry care, medical treatments, exhibit maintenance and record keeping of indoor self-contained exhibit. A background in operant conditioning is desired. Additionally, public presentations are a key component of our exhibits and this position requires engaging the guests daily in a professional and entertaining manner. The position will require long hours of standing/walking and the ability to lift and carry up to 50 lbs. This is an immediate fill position. Please send letter/resume/three references/salary history to: Human Resources Department, Aquarium of the Pacific, 310 Golden Shore, Suite 300, Long Beach, CA 90802; Fax: 562-951-1669; e-mail: sloveira@lbaop.org

AVICULTURIST / LORIKEET AVIARY... (2 positions) Requires Bachelor's degree in biological sciences or related field. Sufficient quality and quantity of equivalent experience will be considered as substitution for degree. Must have experience with the husbandry and biology of Psittacines in general with preference towards Lorikeets (*Trichoglossus* sp.) Responsibilities will include husbandry care (including behavioral training), medical treatments, exhibit maintenance and record keeping of a large walk-through aviary. A background in operant conditioning is desired. Additionally, public presentations are a key component of our exhibits and this position requires engaging the guests daily in a professional and entertaining manner. The position will require long hours of standing/walking and the ability to lift and carry up to 50 lbs. These are immediate fill positions. Please send letter/resume/three references/salary history to: Human Resources Department, Aquarium of the Pacific, 310 Golden Shore, Suite 300, Long Beach, CA 90802; Fax: 562-951-1669; e-mail: sloveira@lbaop.org

CURATOR OF LARGE MAMMALS...position will be one of two mammal curators at The Toledo Zoo. The minimum requirements include a Bachelor's Degree in animal sciences and two (2) year's supervisory and curatorial experience in a zoo setting. Candidates must have proven management/supervisory skills and excellent communication skills. Prefer candidates with previous elephant experience. Responsibilities include all related functions of animal management and supervision of eleven full-time keepers in care of pachyderms, carnivores and other large mammals. Salary is competitive and dependent on qualifications with an excellent benefit package. Those meeting requirements may submit resumés to: Nancy Foley, Director of Human Resources, The Toledo Zoo, P.O. Box 140130, Toledo, OH 43614-0801. EOE.

AVICULTURIST...Tracy Aviary is seeking a highly motivated aviculturist to join our enthusiastic, professional team. We are a small institution where each person's contribution is vital. A BS in biology or a related field and at least one (1) year's experience working with birds in a zoological facility is preferred. The successful candidate will be involved in all aspects of avian husbandry for a large and varied collection that includes, among others, hornbills, cranes, pheasants, waterfowl, psittacines and raptors. Duties will include diet preparation, cleaning, enrichment, record-keeping, exhibit maintenance, minor veterinary care, interaction with the public, and training and supervising

interns. Input to our long-term planning process will also be encouraged. Salary \$18,00.00 plus excellent benefits. **Open until position is filled.** Send cover letter, resumé, and three (3) references to: Nigella Hillgarth, Tracy Aviary, 589 East 1300 South, Salt Lake City, UT 84105 or fax information

AVICULTURE INTERN...interns receive intensive hands-on training in the care and maintenance of a large bird collection. They will experience all aspects of bird husbandry including general cleaning, handling, incubation, record keeping, public education, etc. Seeking college students or recent graduates with an interest in avian management/zoo biology. Interns will work with aviculturists for a minimum three-month period. This is a volunteer position with on-site housing provided. Possible stipend. Internships are available year-round. Our interns receive the same training as any new staff member, and most have gone on to paid positions in large AZA accredited institutions. Send cover letter and resumé with references to: Tracey Aviary, 589 E. 1300 South, Salt Lake City, UT 84105. Fax to: (801) 596-7325. ATTN: Kim Sorensen/Jennifer Morris.

HERPETOLOGY INTERNSHIP... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2001 spring, summer, and fall season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will not be involved in the handling of any venomous reptiles.

Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Benefits include experience with the most extensive and diverse collection of - snakes in the area, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required.

To apply send a cover letter and resume to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. **Deadline for applications for Fall is: 1 June 2001.**

PRIMATE FOUNDATION OF ARIZONA BEHAVIORAL RESEARCH INTERNSHIP...The Primate Foundation of Arizona is currently accepting applications for their Behavioral Research Internship program. PFA is a private, non-profit, corporation devoted to the preservation, propagation, and study of the chimpanzee (*Pan troglodytes*). It is currently home to more than 70 socially-housed chimpanzees and conducts behavioral research with a goal of improving captive management, environmental enrichment, and well-being of the chimpanzees. The research is conducted on site.

The Behavioral Research Internship provides college students in the behavioral and biological sciences the opportunity for behavioral research experience. It includes three basic components: 1) an introduction to chimpanzee behavior and behavioral observation data collection, 2) chimpanzee psychological wellness program and environmental enrichment training, and 3) research support tasks such as data entry. The introduction to chimpanzee behavioral observation is the primary component of the internship and includes data collection on an assigned project, entering the data into a spreadsheet program, conducting preliminary analysis and completion of a background literature review. Results of the intern project are presented at the end of the internship to the full staff to provide presentation experience.

The internship is on a volunteer basis and provides no stipend. Students should have completed at least two years of a four-year program (Junior level standing) in the behavioral or biological sciences. Both undergraduate and graduate students are encouraged to apply. Previous course work and/or experience in primatology/animal behavior is required for all students. Applications are accepted for

three internship periods: Summer, Fall, and Spring. Each internship is three months in duration: Summer - June 1 to August 31; Fall - September 1 to November 28; Spring: March 1 to May 30. Applications should be submitted at least six weeks in advance of the internship start date. Please submit your application ASAP as we receive as many as 100 applicants per position. For further information and application materials, please send a letter of request including your full name and mailing address to: Sue Howell, Ph.D., Research Director, Primate Foundation of Arizona, P.O. Box 20027, Mesa, AZ 85277-0027; email: suehpfa@qwest.net

*Positions posted with AAZK, Inc. may also be found on
our website at www.aazk.org*

*Also, you may want to check out the AZA Member Institution job listings
at <http://www.aza.org>*

For the most up to date links to sites advertising zoo work go to
<http://members.tripod.com/~Sciurus/index.html>

New E-Groups Formed

The following are announcements of e-groups which have been recently established:

Reptile Keepers

The reptile keepers list is intended for reptile and amphibian keepers in zoos and/or aquariums, although anyone with an involvement in herpetology is welcome to join and participate. Herp-related information, zoo-related information, conservation topics are welcomed. If interested in subscribing to list go to: <http://www.egroups.com/group/reptilekeepers>

Penguin Keepers

List for keepers, rehabbers, etc. to share information and advice on penguins, husbandry and captive management, etc. To post a message: penguinkeepers@egroups.com

To Subscribe: penguinkeepers-subscribe@egroups.com

To Unsubscribe: penguinkeepers-unsubscribe@egroups.com

List owner: penguinkeepers-owner@egroups.com

URL to this page: <http://www.egroups.com/groups/penguinkeepers>

Neonate Keepers

Useful forum for those who work in a nursery, or who are suddenly presented with a newborn of some sort and need some info quickly!

To subscribe: Neonates-subscribe@egroups.com

Zoo Historians

Forum open to discussion of zoo history, all zoos, worldwide – questions, answers, discussion! Go to Zoo-Historians@egroups.com

Zoo Educators

"ERNIZE" is a discussion group for Zoo Educators around the world. If you are a Zoo educator and are interested in joining, send a message with some information about yourself to ernize@chesterzoo.co.uk

AAZK Membership Application

check here if renewal []

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Other staff & volunteers

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Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership
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to many zoos and aquariums in the U.S. and Canada.



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ANIMAL KEEPERS' FORUM



The Journal of the American
Association of Zoo Keepers, Inc.

JUNE 2001

Managing Editor: Susan D. Chan • **Associate Editors/Enrichment Options**

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AAZK PUBLICATIONS - CONTINUING DATA COLLECTION

Zoo Infant Development Project - Nell Bekiares, Cincinnati Zoo (Birds/Passerines)
Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo

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About the Cover....

*This month's cover features a Matschie's Tree Kangaroo (*Dendrolagus matschiei*) drawn by Christine McKnight, a keeper at the Minnesota Zoo in Apple Valley, MN. The Minnesota Zoo is home to a young pair of Matschie's Tree Kangaroos. This species of Tree 'Roo lives in the mountainous rainforests on the Huon peninsula of northeastern New Guinea. When on the ground Tree 'Roos can hop like other kangaroos, but unlike their ground-dwelling relatives they are also capable of moving their hind limbs independently. It is this adaptation, along with their strong claws that enables them to climb trees, where they spend most of their time. Habitat loss due to human activities, including logging and mineral exploration, is threatening Tree Kangaroo populations in the wild. Thanks, Christine!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Acceptable formats include: for Macintosh users - Microsoft Word or Works; IBM users - Word for Windows, WordPerfect or Wordstar. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone and FAX contributions of late-breaking news or last-minute insertions are accepted as space allows. However, long articles must be sent by U.S. mail. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980.

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the editor. Reprints of material appearing in this journal may be ordered from the editor. Back issues are available for \$3.00 each.

E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@kscable.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@kscable.com<

**AAZK Website Address: www.aazk.org
Bulletin Board Access: type "aazk" in member name box;
type "Elvis" in password box.
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Scoops & Scuttlebutt



Association Adopts Mission/Vision/Values Statement

At its Mid-Year meeting in Topeka, the AAZK Board of Directors officially adopted the Mission/Vision/Values Statement for the Association. This Statement was drafted by the Board with input from the membership and AAZK Chapters. It reads as follows:

Mission

To provide a continuing educational resource for animal care professionals and promote participation in conservation efforts.

Vision

- We will be a source of pride for the zoo and aquarium community
- We will promote animal care professionals in their roles as animal caregivers, scientific researchers, public educators and conservationists.
- We will promote zoos and aquariums as cultural establishments dedicated to the enrichment of human and natural resources.
- We will foster the exchange of research and husbandry information and materials through publications, conferences, committees and grants.

Values

- Excellence in animal care
- Treating all life and the environment with respect and care
- Sound conservation practices in all aspects of our work
- Open and effective communication
- Respect, honesty and professionalism

Project M.A.R.C. Receives Chapter Support

The Birmingham Zoo Chapter of AAZK recently sent in a \$200.00 donation designated for assistance to Project M.A.R.C. (Making a Realistic Contribution). This project, which gathers and supplies reference materials in the form of zoo journals, magazines and scientific textbooks to zoos and animal care facilities in developing countries, is under the sole direction of AAZK member Kathy Kelly of Silver Spring, MD. Through her continuing dedication and efforts, 44 libraries have been established in zoos and other animal care facilities throughout the world where none existed before. Materials for the project are donated by individuals, zoos, universities, etc. AAZK, Inc. supports the project by paying for postage fees to get the materials from the U.S. to the countries overseas. Project M.A.R.C. has been in existence since 1991. Our thanks to the Birmingham Chapter for their support of this most worthwhile AAZK project.

North American River Otter Husbandry Notebook, 2nd Edition Published

The 2nd Edition of the North American River Otter Husbandry Notebook is now available. This updated and expanded 283 page volume contains contributions from several authors. Information is divided into 17 chapters on: Taxonomy; Distribution; Status; Identification & Description; Behavior; Social Organization & Natural History; Reproduction; Captive Management; Hand-Rearing; Feeding & Nutrition; Health Care; Behavioral & Environmental Enrichment; Training or Behavioral Modification; North American River Otters in European Institutions; Rehabilitators and Otter Resources; Websites, On-Line Education and Useful Addresses; Otter Tales and Legends; General Bibliography. This volume is available at a cost of \$20.00 plus \$2.50 shipping (U.S.), \$5.00 (Canada), \$12.00 (overseas). All funds raised will be contributed to the American Association of Zoos and Aquariums' (AZA) Otter SSP. For additional information contact: Jan Reed-Smith, jrsotter@iserv.net or send a check made payable to John Ball Zoo Society, Attn. Otter Husbandry Notebook, John Ball Zoo, 1300 W. Fulton, Grand Rapids, MI 49504.

From the Executive Director

The Board of Directors recently met in Topeka to discuss various aspects of the Association. As always, we covered the Association's business from top to bottom. We also brainstormed on ways to get the membership more involved in "their" Association. We had an extremely long conversation regarding what benefits the members receive in the course of a year for their \$35.00 Professional AAZK dues. To summarize the conversation; we know what we have to offer, magazine, conferences, website, but we really don't know what the members consider valuable.

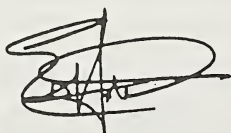
In an effort to establish that our membership has value, I feel that it is necessary to work first on productive communication within the membership. So for the next year, I am going out on a professional limb and dedicating myself to writing this column every other month (in the alternating months, the President will still communicate the business of the Association) with the express purpose of stimulating what I hope is productive communication. I welcome input from members and even non-members, should the subject tweak anybody's interest.

AAZK is not a labor organization and AAZK is prohibited by law to lobby formally as such, but AAZK is recognized as "the labor force". Most of you work for, in one way or another, the American Zoo and Aquarium Association (AZA). Over 75% of the AAZK membership works within an accredited zoo. The policies and "Suggested Guidelines" of AZA have direct effect and impact on the labor force. Some assumptions are now made; the assumption is that the labor force has at least some say, on the local level, during the AZA members comment period before concepts become "Suggested Guidelines". Therefore there is also the inherent assumption that AAZK and AZA are partners in conservation, working together to accomplish parallel goals.

If this is true, then why AAZK? Why not approach AZA to co-op our membership. In theory, a professional keeper category within AZA might be developed. AZA can produce a slicker magazine and work AAZK into Regional Conferences. Bigger, better value for our membership dollar would then be realized and AAZK members are all happier getting more value for their hard-earned dollar.

What does the AAZK or AZA membership view as the downside to melding our respective memberships? Is there actually a downside or are we hung up on the management/labor, us/them issue? Strength in numbers, right? Or has AZA shifted focus away from husbandry? Does AAZK fill a badly needed void for training, enrichment, husbandry and simple communication? If so, why do you think the AAZK membership is so apathetic and professional membership within the Association remains static? Should the Board of Directors pursue joint AAZK/AZA membership?

You can reach me in writing through the Administrative Offices of the Association or e-mail me at zked9@cs.com. Productive comments are most appreciated, but all are digested. See you all in Toronto.



Ed Hansen
Executive Director
AAZK Inc.



Coming Events

International Elephant and Rhino Research Symposium - 7-11 June 2001 at Vienna Zoo Schoenbrunn, Austria. For further information contact: Hschwammer@zoovienna.at< Or visit <http://www.zoovienna.at>

Animal Behavior Society's 13th Annual Meeting - 14-18 July 2001 at Oregon State University, Corvallis, OR. Plenary speakers include Eliot Brenowitz, Harry Greene and Ellen Ketterson. Symposia include "Aggression and Group Organization in Animal Societies", "Behavioral Genetics for the Next Decade", "Detecting and Measuring Mating Preferences", and "Song Learning". For further information see: <http://www.animalbehavior.org/ABS/Program>, or you may contact the local hosts Andy Balustein (blaustea@bbc.orst.edu) or Lynne Houck (houch@bcc.orst.edu).

Association of Avian Veterinarians (AAV) Conference & Expo - 21-25 August 2001 in Orlando, FL. AAV has issued a Call for Papers for this meeting. Theme of the conference is "2001: An Avian Odyssey". Call (303) 756-8380, fax (303) 759-8861 or submit via Internet at www.ConferenceOffice.com/aaav.

American Association of Zoo Veterinarians - September 18-23, 2001. Joint meeting in conjunction with the Association of Reptilian and Amphibian Veterinarians, the American Association of Wildlife Veterinarians and the Nutrition Advisory Group. Sessions include reptilian, avian and aquatic animal medicine, environmental activism, clinical pathology, anesthesia, behavior/escapes, megavertebrates, small mammals, nutrition, field project reports, and case reports. there will also be a poster session, veterinary student paper competitions, and workshops/wet labs. For more information contact Wilbur Amand, DVM, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; phone (610) 892-4812; fax (610) 892-4813; e-mail aaazv@aol.com

International AAZK Conference - 30 Sept. - 4 Oct. 2001 in Toronto, Ontario, Canada. See this issue of *AKF* for Call for Papers, Registration/Hotel Forms, Pre- and Post-Conference Trip Details, etc. or visit the AAZK Conference website at: <http://aazk.toronto.tripod.com>

5th International Conference on Environmental Enrichment - 4 - 9 November 2001 at the Taronga Zoo, Australia. For further info contact: Mhawkins@zoo.nsw.gov.au Or visit <http://www.zoo.nsw.gov.au>

International Wildlife Rehabilitation Council's 24th Annual Conference - 14-17 November, 2001 in Lake Buena Vista, FL. For more information check the website at iwrc-online.org

Fourth Annual Zoos & Aquariums: Committing to Conservation Conference - 28 November to 2

December 2001 in Cocoa Beach, FL. Hosted by the Brevard Zoo, our goal is to bring field researchers and zoo personnel together in an informal setting in order to promote a greater involvement of zoos and aquariums supporting *in situ* work. This conference in particular will focus on a practical common-sense approach on how zoos and aquariums can become involved in supporting field research and conservation. The conference will be a mixture of sessions, panel discussions and round-tables. Conference registration fee (\$175) will include sessions, some meals and social activities. Orlando Conference Committee - Schedule of Events, Papers, Abstracts, Speakers: Beth Armstrong - (321) 454-6285; Registration Chair: Michelle Smurl - (321) 254- 9453 ext.17; Registration/Post Conference Tour: Peggy Sloan - (321) 254-9453 ext. 14; Conference Chair: Margo McKnight - (321) 254-9453 ext. 23.

The Animal Behavior Management Alliance (ABMA) will be holding the 2nd Annual Conference "Enhancing Animal Welfare through Positive Reinforcement", 26 February - 2 March 2002 in San Diego, CA. This conference is hosted by the San Diego Zoo, San Diego Wild Animal Park, and SeaWorld San Diego. For information, contact Gary Priest at gpriest@sandiegozoo.org or at (619) 231-1515.

Defenders of Wildlife Fourth National Conference - 17-20 November 2002 in Monterey, CA. Theme is Carnivores 2002: From the Mountain To The Sea. Will focus on the biology and conservation of a full range of marine and terrestrial predators. Proposals for 1 1/2 to 2 hour sessions, individual papers and posters are being accepted until 29 March, 2002. For more information or to receive a conference brochure, contact: Yvonne Borresen, Defenders of Wildlife, 1101 14th St., NW, Ste. 1400, Washington, DC 20005 or call (202) 789-2844, ext. 315. You can also e-mail carnivores2002@defenders.org or visit www.defenders.org/carnivores2002



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AAZK Announces New Members

Pearl Z. Yusuf, **Zoo New England (MA)**;
Andrea Kingsbury, **York's Wild Kingdom (ME)**; Wendy Potter, **The Philadelphia Zoo (PA)**; Ann Hunter, **Smithsonian National Zoo (DC)**; David Helland, **Green Meadow Cultural Events, Inc. (MD)**; Mary-Lynne Roman, **Western North Carolina Nature Center (NC)**; Phillip M. Sigler, **Disney's Animal Kingdom (FL)**; Jason Day, **Jackson Zoo (MS)**; Scott Schiller, **Indianapolis Zoo (IN)**; Kathy Hiatt, **Blank Park Zoo (IA)**; Jennifer Hunt, **Brookfield Zoo (IL)**; Christine Brewer, **Kansas City Zoo (MO)**; Gretchen Good, **Oklahoma City Zoo (OK)**; Trent Veppert, Brett Fidler and David B. Cyr, **Tulsa Zoo & Living Museum (OK)**; Paula Lash, **Moody Gardens (TX)**; Judy L. Johnson, **no zoo listed (CO)**; Miguel A. Tavaréz and Valerie Chavez, **Rio Grande Zoo (NM)**; Mary L. Streng, **Living Desert Zoo & Gardens (NM)**; Roxanne Losey, **Los Angeles Zoo (CA)**; Shelly Brown, **Moonridge Animal Park (CA)**; Jennifer Gamber, **Oregon Coast Aquarium (OR)**.

Renewing Contributing Members

Elliott Schwab, Volunteer
Memphis Zoo & Aquarium
Memphis, TN

New Institutional Members

Dallas Zoo & Aquarium
Dallas, Texas
Chuck Siegel, Deputy Director

Renewing Institutional Members

Seneca Park Zoo
Rochester, New York

Great Plains Zoo
Sioux Falls, South Dakota

International Exotic Feline Sanctuary
Boyd, Texas

Correction: In the March 2001 issue of *AKF*, Shannon Wyatt's institution was incorrectly identified. It should have read Maymount Foundation not Marymount Foundation. Maymount Foundation is located in Richmond, VA.

Zoo Management Course

The National Extension College in Cambridge, England offers a correspondence course in zoo animal management. The course can be taken by anybody, anywhere in the world. To complete the full course, however, and gain a certificate at the end of it, students must be working in a zoo/bird garden/seaquarium (this could even be a part time/voluntary arrangement providing you get the hours/days in). This is essential for the assessment of the student's practical work.

The course consists of a number of written assignments, the practical assessments, a written project and a final exam. It will normally take around two years to complete.

For the practical assessments students are required to have an experienced senior member of staff agree to be their (local) zoo tutor. It is possible to take the final exam anywhere in the world as long as it is at a recognised educational institution. For further details write: National Extension College, Dept. Z, 18 Brooklands Avenue, Cambridge, CB2 2HN, United Kingdom.



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The Water Column

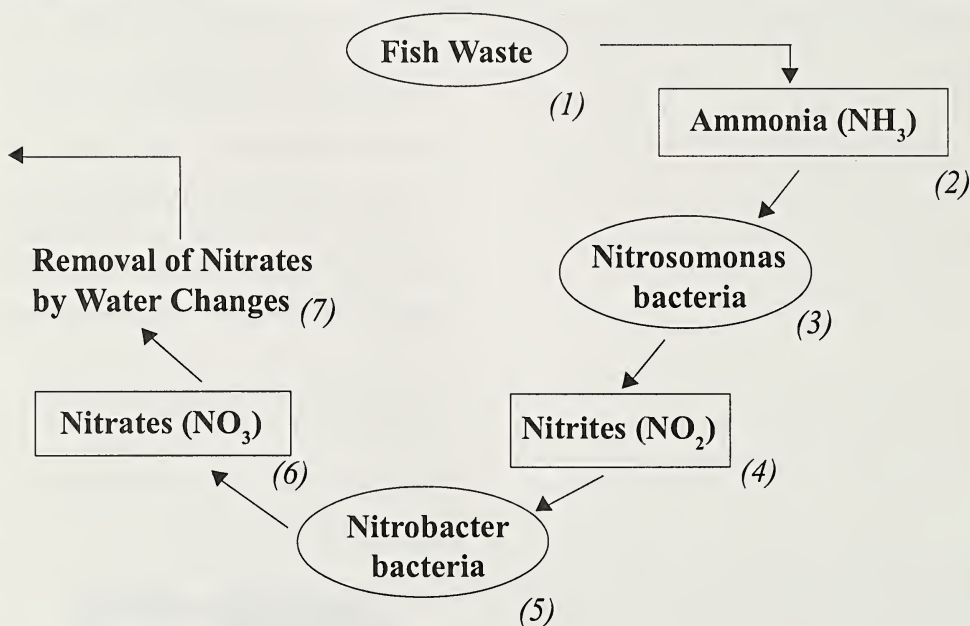
By

Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium

We have talked some about mechanical filtration and how to get the particles out of water but what about the organic waste products? By organic waste - I mean uneaten food, dead algae, detritus, and well... let's just say it "Fish Poop". This is where Biological Filtration comes into play.

Biological filtration is a buzz phrase to name the process by which nitrogen compounds are removed from a system. The entire process is called the Nitrogen Cycle. Using the chart below, I will try to explain the various steps. Please keep in mind this is a simplified view but it fits my purposes here.

Step 1. Fish waste is the addition of nitrogen into the system from various sources. I have labeled it fish waste but it could be from leftover food, dead plant or animal material, etc. Most of this addition is from the natural sources of any living aquatic system. Some of the sources can be controlled. Overfeeding can be avoided. Dead plants and animals can be removed promptly. Hydrocleaning can be done on a regular schedule. Still nitrogen waste products are going to enter the system.



Step 2. Ammonia (NH₃) is the most toxic nitrogen compound in the cycle and as such is the most worrisome. Ammonia toxicity can be either acute or chronic. In acute cases, the animal's blood will not carry enough oxygen resulting in the death of the animal. In chronic cases, the gills become irritated and the gill epithelium will thicken. This thickening leads to less oxygen uptake

and less ammonia removal. With more waste retention and less oxygen available, the fish are much more susceptible to disease and injury.

Ammonia, in an aquatic system, is actually part of equilibrium with ammonium ion (NH_4^+). Ammonium unlike ammonia is nontoxic to fish. The relative amounts of each are dependent largely on the pH of the system. (See the April issue of *AKF* for more on pH). As the pH increases the percentage of ammonia present increases, thus making the system more toxic to your fish. Ideally you want ammonia concentrations to be zero. Don't run off to lower all your pHs (unless you need to anyway) for nature has provided a means to remove ammonia in Step 3.

Step 3. Nitrosomonas bacteria are nitrogen-oxidizing bacteria found in all healthy aquatic systems. They take up NH_3 as nutrition and give off NO_2 as a by-product. They will live in a wide range of temperatures, salinities, even pH, but they must have oxygen and ammoniated water to grow. Most of the biological filtration methods used today were developed to optimize conditions for these bacteria to grow.

Step 4. Nitrites (NO_2) are a relatively less toxic nitrogen compound and the intermediate step in the nitrogen cycle. Fish and invertebrates have a wide range of tolerances for nitrite toxicity. For example; yearling trout have an upper limit of 0.55 parts per million, whereas channel catfish have a limit of 29.0 parts per million. Marine life in general is more susceptible due to their natural uptake of seawater. Invertebrates, also in general, are also more susceptible than fish. Nitrites act on fish by combining with hemoglobin, which blocks the uptake of oxygen. This leads to oxygen starvation and ultimately the death of the fish.

Step 5. Nitrobacter bacteria are a second species of nitrogen oxidizing bacteria found in any healthy aquarium. Nitrobacter take up NO_2 and give off NO_3 as a by-product. They have similar growth needs as Nitrosomonas, other than requiring NO_2 rather than NH_3 . Both bacteria can be surface adhering or free swimming.

Steps 6 & 7. Nitrates (NO_3) are the least toxic and can even be describe as relatively non-toxic. Most animals can tolerate very high levels, although reef species are known to be less tolerant. Nitrates are considered to be the end products of the nitrogen cycle in a closed system since we generally use mechanical means (i.e.; water changes to control the levels). In reality, nitrates have a much more involved role and are not an end product. For example: NO_3 will often be taken up by plants and alga, which will grow and die and decay - starting the cycle again. Nitrates can also be used by denitrifying bacteria as energy sources leaving nitrogen as a byproduct. Nitrogen can then be released from the system as a gas, or used by nitrogen fixing bacteria and then released as NO_3 again. (I warned you I had used a very simplified diagram!)

Now that you have some understanding of how the nitrogen cycle works (I hope), what does all that mean to keeping a 50-gallon tank of fish alive? The short answer is everything! To quote Martin Moe, Jr. "A successful marine aquarium is more the result of a careful balance of bacteria populations than the selection, care and feeding of marine life."

As I indicated in Step 2, ammonia is a very toxic substance to have in your fish tank, but that is exactly the substance that your fish are giving off just *by being alive!*

Next month, I will discuss the practical applications of biological filtration.

Each month we will also be answering a few questions from you. We will try to pick questions that are pertinent to that month's topic. We also welcome feedback from the readers. Questions and comments can be submitted to us by email at: Dan: dconklin@flaquarium.org/ Kevin: kshelton@flaquarium.org/ Bruce: belkins@indyzo.com/ Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602

Animal Behavior Concerns & Solutions

A Question and Answer Forum for the Zoo Professional

©2001 by *Diana Guerrero, Independent Behavior Consultant*
Ark Animals of California, San Diego, CA

BEHAVIOR EVALUATION: American Animal Training Apprentice. Border Collie
(Canis lupus familiaris).

QUESTION

This situation involves a four to five month old dog. The animal resides in a household with a family of four with two kids, both under twelve. The dog nips at the adult female and the children. Basic reinforcers include operant conditioning and play. The trainer(s) have considered shock collars and bopping the dog on the nose.

DISCUSSION

It is in your favor that the animal is young. This is not a long ingrained problem —yet. It is not clear whether or not the dog has broken the skin or caused severe damage. Nor is it clear as to what the history or environment of this animal is. Lack of proper socialization and behavior development might be an underlying complications due to the ill-advised early placement (five weeks) of this animal into a home. However, it is suspected that the animal was also placed into an inappropriate environment for the breed-specific needs.

Without knowing all the details of this case, I would suspect you are dealing with multiple problems that you have not broken down into the various components. i.e., jumping, nipping or biting, hyperactivity, failure to respond to basic commands, ineffective owner leadership or handling skills, history of inadvertent reinforcement of the nipping and biting, etc.

It appears that you need to get the animal clearly to understand what is 'right' ("good") and what is 'wrong' ("ahhh ahhh" or "wrong") because the animal appears to be getting reinforced by events and activities within the environment. We humans often think we are being clear but if the behavior is not changing or is getting worse through training there is something askew.

When animals get food fixated you need to back off on the continuous reinforcement schedule. With dogs it is easy to substitute praise and to implement a release word. Since the nipping of the adult female has escalated through training efforts, I would teach the animal "gentle" and make sure it is not rewarded for grabbing or nipping. Also, it appears that your animal understands and pays attention during low distraction training situations but otherwise has no understanding of what behavior is required of it or does not have sufficient motivation to obey. This is common with sensitive animals that are also hyper-responsive.

Please note that herding dog breeds will respond to children under the age of 12 as siblings or as animals to herd. Nipping is part of the herding behavior strategy. Herding dogs, especially Border Collies, require high amounts of DAILY activity and a JOB to focus their minds. In general, Border Collies are extremely instinctual and have extreme activity direction needs.

Let me outline how I normally deal with aggression programs —and I suggest you IMMEDIATELY get professional help and coaching from someone familiar with aggression work with progressive training methods rather than some of the ones you have considered using.

Make sure also that you are working on a leash at all times until your clients have progressed to advanced control over the animal.

Get help and training on aggression.

Due to the dangers to the family and potential liability issues get professional coaching on this case: Try Dr. Larry at www.familyanimal.com since he deals with hardcore aggression cases or visit my website www.arkanimals.com. (You can make a phone, personal or email appointments in the Hotline area.)

Test for basic obedience and implement manners training concurrently. I am guessing you train the owner to train rather than doing the work yourself. If the dog does not have a “down” or “sit” stay at 50 feet for a duration of five minutes (or more) there is not sufficient behavior control and this is a problem. If you are just beginning, a one-minute “sit” stay (at a six-foot distance) should be taught easily by the owner(s) within a week.

If the animal has not completed or does not respond to basic obedience commands (come, sit, down, stay, leash manners, etc.,) make sure you are implementing those CONCURRENTLY with your aggression program. This can be done in the home.

Obedience classes are good for teaching the animal to respond in high distraction situations but in this situation your problem is in the home and I would start there. Working in a class and at home at the same time could help the owner not feel so overwhelmed, and of course, children stay home on obedience class night.

Integrate the dog into the home environment. Is the dog primarily indoors or outdoors? If the dog is spending large amounts of time ostracized from the family then it needs to be integrated into the home gradually to assist with reducing all problems. (There are about 60% more problems found in dogs that are ostracized from the family.)

Teach the owners to take passive control. Everything is earned. No nudging, no pawing, no dashing through doors first or running through the owner to do so, no demanding behavior for food or attention. Sit before feeding, before coming in etc.

ALL owners should be incorporated into the program. Since you did not mention the male of the household I would assume he is not having any behavior problems with the dog, in which case I would suspect dominance/hierarchy problems as being one of the underlying challenges with this adolescent animal.

Use a terminal bridge (release word). This clearly gives the animal a signal that it is done. Words like “free”, “release”, “at ease” or something similar can be used. I don’t recommend the word “okay” since it too common in the English language and is often used by mistake. In many cases of owner error, the animal is reprimanded for complying with the mistakenly uttered release word.

Using this strategy will also help clearly outline the parameters of training to the animal. It also has a tendency to decrease the hyper-responsiveness and anticipation that often results in grabby or insecure behavior outside of training and that sometimes can occur during the training.

Establish controlled circumstances where the chance of nipping, biting, etc., cannot occur. If this means the animal has to be restrained on leash or within certain confines of the home, then that should be done. If you are using a choke collar I would recommend you train the animal on a head halter device, such as the Halti.® This allows the owner to have control without using force and controls the head and mouth of the animal. Use of choke collars on sensitive and

hyper-responsive animals can complicate your training and actually escalate the tendency to be flighty or to nip and bite.

Elicit cooperation from the kids. Work at finding the critical distance that the dog reacts and begin your desensitization program from beyond that limit. Kids will have to learn to remain quiet and still — practicing around the dog beyond the critical response distance. You might also redirect the energetic dog into appropriate games. Teach the dog chase the ball or run around the yard by clapping your hands and or putting it on cue.

Make sure all aggression stimulating games of chase, tug-o-war and others are eliminated and that the kids take over the appropriate games —always supervised with an adult present to prevent any altercations.

Give the dog a job. Once the pup has basic obedience under control you can get the animal enrolled in agility or herding classes. These activities will redirect the instinctual and high-energy behavior into an appropriate outlet. You can also get enrichment items for the animal to herd. See the *SOS* section of my website to order some of these products.

Neutering. If the animal is not altered have the owners do so immediately. This often takes down the aggressive tendencies within a short time after.

Diet. Make sure the animal is on good quality food. Foods with fillers, sugars, and additives will escalate any hyperactivity. You may also consult with a veterinarian and try taking the protein level down a bit.

Reprimand timing and execution. It appears that you are addressing to correct the behavior during or after escalation. I would suggest that you correct when you first see the animal keying up or exhibiting aggression signals such as body tension, ear positioning, tail, mouth and other subtle signals. Make sure you reinforce (verbally only) the animal when it quits exhibiting the signals and redirect it to appropriate relaxed positioning or to an obedience position such as “down”.

Do not use aggression to combat aggression. Hitting on the nose is connected to the owner and is an archaic method. I don’t recommend shock and see it only as a last resort beyond pharmacological and other strategies.

Try disassociated reprimands like an air horn, crashing trashcan lid, book on the table, or a water stream by the back of the ear just before any of the more subtle escalation behaviors occur.

Get Yourself Current. I suggest you read up on some of the more current animal training books. You can purchase all my reading recommendations online at my website through the *E* or *SOS* section.

Other. You might also consider instigating a 72-hour period of the animal being ignored and having to earn all attention. I have found this to work well in some of my more severe aggression cases. In most cases, the behavior can be eliminated reliably within 12 weeks. In more severe situations pharmacological or alternative therapies can be helpful. For further information please also read the pet question and answer articles that can be found at my website in the *Taming It Down* section.

Recommend Reading

Campbell, William. 1999. *The new better behavior in dogs*. Alpine Publications.

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- Ryan, Terry. 1998. *The toolbox for remodeling your problem dog*. Howell Book House.
- Rameriz, Ken. 2000. *Animal Training: Successful animal management through positive reinforcement*. Shedd Aquarium Press.

About the Author: Since 1978 Diana Guerrero has worked professionally in a variety of animal facilities. She has been certified by a variety of educational organizations such as the Moorpark College Exotic Animal Training & Management Program, The Gentle Jungle Affection Animal Training School, The International Training Centre at the Jersey Wildlife Preservation Trust in England, and program extensions with Marwell Zoological Park and Kent University.

Her unique adventures with animals of all types give her unrivaled experiences and insights. Information on seminars, training, courses, animal careers and publications are available at her website: <<http://www.arkanimals.com>> or <<http://www.arkanimals.com>>. Questions for ABC's should be submitted to Diana directly via email: <arkabc@arkanimals.com> or via regular mail to ARKANIMALS.COM, P.O. Box 1154, Escondido, CA 92033 USA.

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THANKS!

Conservation of Nonhuman Primate Species in Panama: Monkeys of the Primate Refuge & Sanctuary of Panama

By Daniel R. Tardona, Animal Behavior Researcher
Primate Refuge and Sanctuary of Panama and
Primate Behavior and Ecology Program
Florida State University-Panama Canal College Branch

At the time of this writing came the announcement of the first nonhuman primate species to become extinct in the 20th century, the Miss Waldron's red colobus monkey (*Procolobus badius waldroni*). This West African monkey was a victim of disruption and loss of habitat and a target of hunters. Many imperiled primates around the world require a multitude of conservation strategies in order to ensure their continued survival. Conservation strategies include reintroduction of captive animals, captive breeding, creative wild population management, and inclusion of animal behavioral basic and applied scientific research. In addition, imperative components of any successful conservation effort include public conservation education, community involvement and ecotourism development, increased development of cooperative research and management between captive and wild animal management entities such as zoos, refuges, national parks and other similar entities.

One conservation strategy that zoos and wildlife parks strive to support is the reintroduction to natural habitats of previously captive animals that were rehabilitated, captive or wild-born. Finding appropriate habitats to introduce or reintroduce such animals into wild environment is often difficult or no longer suitable. Reintroduction strategies are often troublesome for a number of reasons. A major obstacle is simply the lack of appropriate habitat. Other impediments include lack of behavioral knowledge about a given species. Maintaining species typical behavior in captive-bred animals may be an important variable, especially in social animals such as primates. In order for any reintroduction or introduction effort to be successful it seems obvious that many factors must be considered. Any reintroduction program should include cooperation with human communities near to release sites, public conservation education, long-term and consistent monitoring, documentation of procedures, post release outcomes and dissemination of findings to all conservation entities including zoos. One Central American effort in the Republic of Panama seeks to provide previously captive nonhuman primate species a place in a suitable natural habitat. Conservation education, research and the promotion of ecotourism are important considerations as well as documentation and dissemination.

The Primate Refuge and Sanctuary of Panama (PRSP) is located on islands in Gatun Lake, in the Republic of Panama. In 1914 islands were formed when the Charges River was dammed during the building of the Panama Canal. As a result of the dam, the land area was flooded creating Gatun Lake. The islands are the high points of the former landscape that remained above water level, and are collectively known as the Tiger Islands and the Bruja Islands, providing approximately four square kilometers of land area (some readers may be interested to note that the Smithsonian Tropical Research Institute is located on Barro Colorado Island, another island in Gatun Lake). The islands of the PRSP vary in size and to some degree in flora and fauna. For the most part, they are secondary growth forests.

A small sampling of notable wildlife found on the islands include two-toed sloth (*Choloepus hoffmani*) and three-toed sloth (*Bradypus variegatus*), porcupines (*Coendou mexicanum*), agoutis (*Dasyprocta punctata*), anteaters (*Tamandua mexicana*), coatis (*Nasua narica*), a number of bat species including vampire bats (*Desmodus rotundus*), the venomous snake Fer-de-lance (*Bothrops asper*), iguanas (*Iguana iguana*), caimans (*Caiman crocodilus*), marine toads (*Bufo marinus*), kiskadees (*Pitangus sulphuratus*), harpy eagles (*Harpia harpyja*) and a plethora of insects. This

rich diversity of wildlife varies somewhat from one island to another. Animals such as the sloths swim from island to island and other arboreal animals can move among islands that are close enough to be bridged by tree branches.

The refuge and sanctuary was created for the purpose of introducing/reintroducing nonhuman primates confiscated from the illegal pet trade, or held in captivity as pets or zoo animals. The PRSP director is Dr. Dennis R. Rasmussen, a comparative psychologist and primatologist who has been studying tamarin behavior in Central America since 1981. He is also a faculty member of Florida State University-Panama Canal College Branch.



Black-handed spider monkey (*Ateles geoffroyi*) largest of the New World Monkeys. (Photo by Jennifer Kirpatrick)

There are six species of monkeys that have been introduced into the PRSP and one species that has existed in the area, presumably since before the building of the Panama Canal. Two species of spider monkeys, the black-handed spider monkey (*Ateles geoffroyi*) and the brown-headed spider monkey (*Ateles fusciceps*) have been introduced. The largest of the New World monkeys; spider monkeys live almost exclusively in the high canopy rain forests and are relatively intolerant of habitat disturbance (van Roosmalen, 1985). They are excellent brachiators and have a prehensile tail. Spider monkeys have been successfully introduced onto a few of the PRSP islands.

Mantled howler monkeys (*Alouatta palliata*) also have been introduced. These monkeys have a thick mantle of fur about the neck and are known for their loud and deep calls of the males, hence their common name. They are large like the spider monkey but with legs a bit stouter, and they also have a powerful prehensile tail. Also introduced onto some of the islands are white-faced capuchin monkeys (*Cebus capucinus*). These monkeys have a slightly prehensile tail that is strong enough to support their own body weight. They are often seen with their tails coiled at the tip prompting the common name "ring-tail monkey" (not to be confused with the ring-tail lemur of Madagascar).

The largest population of monkeys that has been reintroduced on the islands (this species was

present in the area before Lake Gatun was created) is the rufus naped tamarin (*Saguinus Geoffroyi*). According to Rowe (1996), rufus-naped tamarins prefer secondary growth forests with a dense understory. The PRSP is perfect habitat for these relatively small primates. They move in small groups sometimes high up in the trees, leaping and bounding between the very ends of tree branches. In many ways they are reminiscent of squirrels. As they move along overhead, they can be heard to vocalize with high pitched whistles and trills. However, when foraging for insects lower in the understory, they move more quietly with very little disturbance.

There is one species of monkey indigenous to the islands, apparent descendants of the populations that occupied the area before the creation of the lake and the Panama Canal. On at least three of the islands including the main Tigre Island, northern gray-necked owl monkeys (*Aotus lemurinus*) can be found. A little larger than the tamarins, these nocturnal monkeys are well adapted to their nighttime way of life with their large eyes reminiscent of owls. During the daylight hours they nest in tree hollows. Formerly captive owl monkeys, however, have been successfully introduced on to Tigre Island.

There is one non-endemic individual monkey within the refuge, a single female Peoppig's woolly monkey (*Lagothrix lagorica peoppigii*) that was received from the Fort Sherman Zoo. The woolly monkey is listed as critically endangered to endangered by IUCN (1996), and because of the threat to the species' existence, this individual was accepted to the PRSP. According to Mittermeier (1988), these monkeys are hunted for food by humans in Amazonian South America and prefer the upper canopy of mature contiguous forests (Mittermeier, 1988). Their hair is short, thick and woolly, and they have a naked face that is almost black. The single female was placed on one of the Panamanian islands in the hope that eventually she will be placed with others of her species in order to propagate this often-poached monkey of the Amazon Basin.



Mantled howler monkey (*Alouatta palliata*). Males are known for their deep, loud calls.
(Photo by Jennifer Kirpatrick)

The PRSP is an attempt at nonhuman primate conservation to introduce previously captive monkeys into a more natural environment within their native range. However, the monkeys released into the PRSP are not simply introduced and then left to fend for themselves. In some respects, the PRSP is managed somewhere in between a totally wild habitat where food may become scarce and where potential predators are numerous, and a modern progressive zoological facility environment. Before any of the monkeys are introduced into the natural environment, they are quarantined and if not in good physical condition at the time of their arrival, are nursed to good health. All of the monkeys on each of the islands are food provisioned with native fruits.

Before being introduced into the wild all individual monkeys are acclimated to their new home. A monkey is put into a reinforced cage placed on an island. The cage is sized for the particular species so that already free ranging monkeys can visit a newcomer. This procedure allows for the free ranging monkeys and the new individual to adjust to the new situation. Once acclimated, the monkey is released.

If after release, the animal is threatened as result of not being accepted by other monkeys or is threatened by other animals at the release location, the monkey is trapped and relocated within the PRSP. Even after release, the monkeys are monitored and disease control efforts are made. For example, recently the PRSP was infested with bot fly larvae that infected the howler monkeys (it seems that howler monkeys are particularly susceptible to the bot fly larvae). The howlers were captured and treated by a veterinarian and released. Despite the collective name of the islands, there are no jaguars (*Felis onca*) or other larger potential terrestrial predators. There are coatis, venomous snakes, raptors and other potentially lethal animals, but interactions with these animals are extremely rare. Some individual monkeys (a capuchin and a black-handed spider monkey) have been observed to enter the lake and swim to nearby islands. I observed a black-handed monkey swim almost daily over a few weeks between two islands separated by approximately 10-12 meters (the swimming behavior of two individuals has been observed for some time by many researchers and staff on the islands). This behavior makes those individuals susceptible to predation by caimans, although no such predation has been observed at the PRSP. Monitoring of the reproductive groups of monkeys has documented births among the tamarins, capuchins and the owl monkeys.

The conservation of nonhuman primates and their habitats is increasingly becoming a major focus for primatologists. About half of the approximately 250 recognized species of nonhuman primates are considered to be of conservation concern by the World Conservation Union (IUCN) Primate Specialist Group (Mittermeier, 1997). Reintroduction of captive-born animals into the wild is often unsuccessful (Beck, Rapport, Price, & Wilson, 1994) and costly (Kleiman, Beck, Dietz & Dietz, 1991). Kleiman et. al (1991) also point out that over protecting managed animals from food shortages, predators, parasites and other natural threats can result in populations with limited coping skills. There are a multitude of variables that influence the success or failure of such reintroduction, but most certainly human interactions with previously captive-born and wild populations of nonhuman primates will increasingly become important factors. It is therefore imperative that studies be conducted with regards to human-nonhuman primate interactions in wild and captive environments, in order to promote and maintain primate physical and psychological well-being as well as minimize the disruption of species typical behaviors in such environments.

The PRSP as a research location presents a unique opportunity for study of human-nonhuman primate interactions among previously captive nonhuman primates that have been introduced into a free native environment that includes elements of both wild and captive settings. Research carried out at the PRSP assists managers of wild areas, national parks, refuges, sanctuaries, zoos, wildlife parks and similar facilities where nonhuman primates are located, to better evaluate and manage the areas for animal health and welfare and ecotourism. Such research is invaluable in

those instances where previously captive nonhuman primates are introduced or reintroduced into wild areas such as national parks, refuges and sanctuaries.

The PRSP mission includes the promotion of primate conservation education and ecotourism. Visitors to the PRSP who observe the monkeys are provided with the opportunity to form their own intellectual and emotional connections with these animals so that they will appreciate and support conservation efforts in Panama and around the world. It is the hope of most conservation efforts that through public education in Panama, Panamanians as well as foreign visitors will not only experience intellectual and emotional connections with the animals, but also with the associated natural resources.

Ecotourism, conducted in such a manner whereby the public experiences a positive interaction with the monkeys and in such a manner that the health of the animals

and their habitats are not compromised, supports human and environmental interests. In the process of the ecotourism experience, the visitor becomes more educated about the monkeys and their habitat, resulting in the realization of the value of these important native animals. In addition, individuals providing the experience as tour guides, boat operators, landowners or others, acquire some economic gain, personal pride and appreciation of the animals as well. In some cases, the ecotourism replaces a former less sustainable or even environmentally detrimental way of making a living. As a result, nonhuman primate conservation efforts will gain social, political, economic and philosophical support among Panamanians.



White-faced capuchin monkey (*Cebus capucinus*). Considered to be highly intelligent primates, these animals have become one of the most numerous monkeys in captivity. (Photo by Jennifer Kirpatrick)



Rufus-naped tamarin (*Saguinus geoffroyi*). These monkeys have acute vision and good hearing. They run quadrupedally along horizontal branches and leap from branch to branch in the forest. They emit high-pitched trilling and staccato calls.

(Photo by Daniel R. Tardona)

One of the components of the conservation missions of zoological and other captive animal facilities is to eventually return wildlife to their natural environments or at least to more suitable wild places. Often, under the best of circumstances, there is simply no opportunity to return animals to the wild due to the lack of appropriate habitat, socioeconomic constraints and/or political barriers. Depending upon an animal's individual captive life history, a completely independent and wild environment may not be the most suitable placement. The Primate Refuge and Sanctuary of Panama offers an opportunity for accomplishing one of the broader facets of the conservation mission of zoological and other captive animal facilities, most specifically for nonhuman primates. It is one example of how *ex situ* and *in situ* wildlife conservation can work together. In some respects, the PRSP functions as a halfway house for previously captive nonhuman primates. Like most zoological facilities, the PRSP offers opportunities for public conservation education and for gathering management data with regards to animal rehabilitation, transition from captive to eventual wild environments and human-animal interactions.

In the zoo environment, the presence of visitors has been shown to correspond to increased audience-directed behaviors and locomotory behaviors of captive primates (Mitchell, Tromborg, Kaufman, Bargabus, Simoni, and Geissler, 1992; Hosey and Druck, 1987). Chamove, Hosey, and Schaetzel (1988), however, report that the presence of groups of humans may be a source of stress in zoo primates and that different species respond in different ways to the presence of visitors. In addition, these researchers observed behavioral changes among captive primates that included decreased affiliative behaviors and increased instances of aggression and stereotypical behavior. Systematic studies



Northern grey-necked owl monkey (*Aotus lemurinus*). Owl monkeys or night monkeys are the only nocturnal Neotropical primates. (©2000 Michael R. Wilson)

focused on human-animal interactions in a setting such as the PRSP can provide opportunities for gathering important data with management applications to wild and captive settings. Information gathered from programs such as the PRSP offers the hope that reintroductions and introductions of previously captive primates and other animals may be a viable conservation strategy.

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Pensive looking black-handed spider monkey (*Ateles geoffroyi*). This individual has been observed swimming between islands in Lake Gatun, Panama. (Jennifer Kirpatrick)





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Charles Guthrie
Southern Ontario AAZK Chapter
Toronto Zoo
361A Old Finch Avenue
Scarborough, ON M1B 5K7

e-mail: ecole@zoo.metrotor.on.ca
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phone: (416) 397-9055

Jeff Phillips, National Programs Chair
136 Harpersfield Street
Davenport, FL 33837

e-mail: jeff_phillips@worldnet.att.net
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A Species Odyssey

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Mail form to: Toronto Colony Hotel, 89 Chestnut Street, Toronto, Ontario M5G 1R1 Canada

Conference Notes

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As an incentive to register early, we are offering free parking spaces across from the hotel to the first 50 drivers to register from out of town. These were a gift from the city of Toronto and the catch is that once you leave the spot you lose it. However, the public transit system is convenient and travels to most of the places you would want to go.

EXHIBITOR TABLES

There is still space in the Exhibitors Hall for Chapters or groups interested in selling or displaying their products or causes.

Cost per table for the duration:

\$100 (CD) for non-profit groups such as an AAZK chapter or a TAG.

\$200 (CD) for profit groups such as wildlife artists, suppliers, etc.

SPONSORS NEEDED!!

We would also be very grateful to any AAZK Chapter or group willing to sponsor an event such as a coffee break or hospitality suite. All donators will receive recognition in our Conference Registration package.

For more information visit our website at <http://aazktoronto.tripod.com> or contact Lesya Pedden at aazk2001@zoo.metrotor.on.ca.

PRE-CONFERENCE TRIP: Haliburton Forest And Wildlife Reserve Wolf Center and Canopy Tour Friday and Saturday, September 28th and 29th

Experience the Canadian north like few have ever done! The trip consists of an overnight stay just 2 1/2 hours north of Toronto. Visit wolves in their natural environment; walk with wolves in the evening, and the next day to top it all off, a canopy boardwalk some 20 meters (approx. 60 feet) above the forest floor. Delegates will spend the night at the reserves' two lodges. Sign up early as there is limited seating for this unique trip. The cost of this overnight package is \$150 (CD).

POST-CONFERENCE TRIP: Niagara Falls Excursion Friday and Saturday, October 5th and 6th

Friday will begin with a wine tour through Southern Ontario's prime vineland and will end in Niagara Falls. In Niagara Falls, delegates are free to explore the natural beauty of the falls, the unique main street of the city or even the casino. Saturday we leave for the African Lion Safari for a tour and lunch before heading back to Toronto. We will be staying at the Days Inn Clifton Hill, and delegates are responsible for booking their own rooms. The phone number is (905) 358-0277 and make sure to say that you're part of the AAZK for the special room rate of \$89 (CD) for a double room accommodating one to four people. This trip will have limited seating as well, so sign up early. The cost of this trip is \$60 (CD).

For details contact Mavis Russell at (416) 392-5964, Lesya Pedden at aazk@zoo.metrotor.on.ca OR visit our website at aazktoronto.tripod.com



A Question and Answer Forum for the Zoo Professional on Crisis Management

By William K. Baker, Jr.
Gainesville, TX

Question

We have been experiencing problems with our shift doors in our carnivore building. What options do we have?

Comments

The captive management of dangerous animals in a zoological institution is challenging enough without the addition of technical problems. Effective animal and time management is totally dependent on two factors, the quality of the staff and the facility that houses the animals. This may sound simplified, but it's true. After being an elephant trainer (free, limited, and protected contact), seal and sea lion trainer, cat manager, and more recently a free contact cat trainer, I have found that more often than not, the answer is a simple one. In my experience, the most likely culprit for shift door failure in dangerous animal management is a design flaw. This can exist on five levels.

Problems:

1. The technical design of the door and the mechanism, which physically operates the door. Essentially this is a flaw in the actual engineering of this piece of equipment. More often than not, this results in the door binding during daily operation.
2. The composition of the materials which were used in the physical construction of the door and operating mechanism. In short, sub-standard materials can result in premature aging of equipment.
3. The fabrication process of the equipment plays an important role in the development of a shift door. A lack of attention to detail can result in degradation of even a good design and result in an inferior product, even if it is installed properly.
4. Flaws in night house technical designs can produce a particular problem. Specifically, the building itself may be out of line resulting in shift door malfunctions. It is possible that the actual construction material could be the problem, but it's rare.
5. Age, weathering, and transition in the supporting geography can result in a shift in the foundation over time. This is usually visible as cracks in the foundation or fissures in the masonry.

Solutions:

1. Designs should be proofed not only by engineers, but also by animal professionals who are familiar with night house designs and physical operations. It is infinitely easier to fix a problem on paper than during the construction phase of a project.

2. The engineer and general contractor should supply actual samples of the materials that will be used in each phase of the project. Physical specifications should be clearly defined in a detailed metallurgical report, including composition, strength, and shear.
3. Require that an actual working model be produced and tested before fabrication proceeds. The model should be full size and utilize the exact materials specified for the completed project.
4. A member of the animal management team should inspect all shift mechanisms before installation and physically test each one after installation. Problematic walls or improper installation can be caught at this stage and corrected before project completion. An engineer's level is an invaluable tool for checking to see if the building and door is "true".
5. Effective site preparation can prevent in most cases a shift in foundation. However, unusual shifts in temperature extremes can cause premature aging and cracks and fissures can still occur. Foundation leveling and repairs are a viable option, as is reinforcement of masonry structures. But, they are expensive options.

Options:

1. Inspect all doors, operating mechanisms, and the night house structure to ascertain the specific problem and determine a course of action.
2. Once the problem has been identified, the question is a financial one. Do you repair, retrofit, or replace the problematic door?
3. Repairs are a short-term fix at best, retrofitting or replacing the door is the better and safer option, especially if the builder warranted the work.

Let me approach this from a different point of view. There are to the best of my knowledge less than ten zoological facilities that utilize free contact work for handling their carnivores. As a result, functional shift doors are an essential part of the safe management of exotic animals in captivity. I visit between 5-10 facilities a year. Needless to say, I have been privileged over time to see a few facilities that have progressive carnivore holding designs and safety features. If you have the opportunity, I would recommend visiting the following institutions to see their designs:

Caldwell Zoo	Tyler, Texas
Cheyenne Mountain Zoo	Colorado Springs, Colorado
Fossil Rim Wildlife Center	Glen Rose, Texas
International Exotic Feline Sanctuary	Boyd, Texas
North Carolina Zoological Park	Asheboro, North Carolina
White Oak Conservation Center	Yulee, Florida

Next Month: Can personal interests influence crisis training?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S. W. 29th St., Suite 133, Topeka, KS 66614 - 2054 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)



Book Review

Zoo and Aquarium History: Ancient Animal Collections to Zoological Gardens

Copyright 2000 Edited by Vernon N. Kisling, Jr.

Published by CRC Press LLC, 2000 N.W. Corporate Blvd., Boca Raton, FL 33431, USA

440 pgs Hardcover Numerous B&W photos Cost: \$69.95

*Review by Phil King, Zoo Foreman
Assiniboine Park Zoo, Winnipeg,
Manitoba, Canada*

To review such a book as this succinctly is difficult, as the more than 400 pages quite thin paper contain such a wealth of information impossible to completely digest in one sitting. I have the pleasure of having met and corresponded with some of the contributors and this, of course, is something which adds to the flavor of their particular submissions.

With 11 chapters which collectively cover most of the major regions of the world with regard to their animal collections, a substantial appendix listing chronologically by their founding date many zoos and other animal collections of the world in order by country, and a very good index (so important in a work of this kind), this book provides a thorough historical overview of the establishment of zoos from about 3000 B.C. to the present. Together with Deiss and Hoage's *New Worlds, New Animals* (Johns Hopkins University Press, 1996), it provides as good an appetite-whetting as you will need to encourage delving into publications on specific collections or topics to discover even more of the history of the profession we all follow.

Each chapter is written by a different author, each of whom is extremely well-versed in the subject, so the style of writing and, indeed chapter arrangement, differs from one to the next. These include, in no particular order, an efficient summary of American zoo history by Vernon Kisling, condensing this quite wide field very effectively - no easy accomplishment; Leszek Solski's rather emotional, yet common sense review of zoo history in Eastern Europe and Russia, all the more interesting because such information is quite thin on the ground. Similarly, Sally Walker proudly (and with some justification) outlines India's many contributions to this field, not the least of which includes the first published book on zoo animal management in 1892. She also contributes a chapter on the zoos of Asia, and co-authors, with Pretoria Zoo Director Willie Labuschagne, one on Africa as well, and these areas are frequently overlooked when such a topic is discussed. Ken Kawata's chapter on the zoos of Japan covers not only history but social history as well, coupled with a comparative outline on the structure of their operation today. In keeping with other works of his, it is well-ordered, concise and detailed. Georgann and James Ellis cover in some depth the South American region, interesting because so little information is available from this region. Catherine de Courcy's chapter on the zoos of Australia differs from the others as it covers the topic by reference to the four most influential facilities (those not familiar with the area will perhaps be surprised to learn that zoo development here was guided to great effect by only two families). The well-documented and heavily influenced area of Western Europe is covered in most knowledgeable style by Harro Strehlow, and deals with another area extremely difficult to condense effectively. Great Britain, a geographically small area but one with unrivaled influence in zoo history, is covered not surprisingly by Clinton Keeling in a very honest and workman-like fashion. No one is perhaps better suited for this than he, being probably the most influential person in the area of interest in zoo history.

Another interesting and most appealing characteristic of this book is the abundance of highlighted articles written within the chapters which feature encapsulated biographies of noteworthy zoo personnel, animals, events and literary trivia. The most outstanding feature, however, is the realization and recognition of how much work went into putting it all together. Vernon Kisling has done a masterful job here of combining a tremendous amount of information from various contributors, and has tied it together with a substantial introductory chapter on ancient collections and menageries. It must be made clear, however, that this is not a book about the history of zoos of the world. It is more about the history of the zoo philosophy and its *raison d'être*.

Obviously the main appeal of this volume will be to those who, like myself, have a keen interest in zoo history. It seems an unfortunate attitude has become prevalent in some circles in recent times that what happened in the early days of zoo history and development is no longer relevant; that only the recent generation is actually doing meaningful work; and that, strangely, that relevance is somehow only validated by membership in certain organizations. Paraphrasing George Santayana's oft-used quotation from *The Life of Reason* - "Those who cannot remember the past are condemned to repeat it." While this quote is more commonly used in reference to war than anything else, it seems appropriate here, too. Those entering or having recently entered the zoo profession will find the writings here contain a vast amount of thought-provoking fodder. If they will read and approach that thought-provoking state with an open mind, the benefits will be boundless. Far too much zoo history has been consigned to immortality, gone forever, and that situation is still ongoing. It is important to realize that in some cases at least, the wheel has already been invented. A point to ponder in all this is to find out how far back does the collected archival material on your own zoo extend.

The photographs in this book are all black and white which, in many ways, adds to the archival aura. Many of them are hitherto unpublished and most, I would suggest, are seldom seen. They offer a fascinating array of enclosures and situations, but unfortunately they are neither numbered nor listed in any index, and this is probably the only major fault of the whole publication. Each chapter ends with a substantial list of references, the numbers of which are handily included in the appropriate text. While this may invoke much page-turning, instant reference is the prize, as opposed to time-consuming searching.

This book is not something which most people will read from cover to cover in one sitting. It is a reference book which presents information without glorification. It asks for balanced consideration, and the lucky people who cultivate an interest in the history of their profession will, I think, be truly rewarded. My hope is to see an increase in such interest, and that will be the most fitting legacy of this book, its editor and contributors. A place on your bookshelf should be reserved for it, as it has been on mine.

By way of closing this rather lengthy review, and of illustrating what gems of information are contained herein, I will leave you with the following thought. The next time you are asked to do what you might consider the worst job in the zoo, consider the plight of the man employed in one Indian zoo's insect room in 1913, whose job was to "go in and allow the insects to feed on his blood. He was tied to a bed and not allowed out until the time his contract was over"! Vampire bats, anyone?

Interested in doing a book review for *AKF*? We have a number of books currently available for review. Reviews must be turned in within 60 days of receipt of the book and once the review is properly submitted and accepted for publication, the reviewer may keep the book for his or her personal library. If interested contact the editor via e-mail at akfeditor@kscable.com< Include your name, full mailing address, e-mail address, daytime phone number and area of animal interest or expertise. We try and match up reviewers with books in their area of interest.

San Diego AAZK Chapter

The San Diego Chapter of the American Association of Zoo Keepers has started off the millennium at a steady clip. We have maintained a solid member base and brought a few newer keepers to the Board. Our Chapter Board for 2001 includes:

President.....Jo Ann Haddad
Vice President.....Bob Cisneros
Secretary.....Denise Wagner
Treasurer.....Nicki Boyd
Liaison.....Eileen Neff
BFR Coordinator.....Donna Kent
Supporting Board.....Leticia Plasencia
Supporting Board.....Becky Schaefer



We rounded out our 1999-2000 Animal Buns calendar sales by earning almost \$4400.00. This enabled us to donate to the National AAZK Endowment Fund and the general operating fund for the Association; sponsor a conservation artist in Peru--twice; purchase rainforest acres from the Center for Ecosystem Survival; donate to the Cheetah Conservation Fund of Namibia; and assist in sending three keepers to the National AAZK Conference. Our annual Swap Meet brought in almost \$300.00 which we donated to the Amazon Conservancy Team.

We've made several trips to Sea World lately to learn about polar bear and penguin husbandry. Our holiday party at Joan Embrey's was a great success, and we are very thankful to them for inviting us back for a visit. Recently

Chapter News Notes

we were visited by Dr. Kurt Benirschke and heard very candid stories about the Chacoan Peccary Project.

The new head of the Center for Reproduction of Endangered Species (CRES), Dr. Alan Dixon, also stopped by to tell us what's new at the center.

Our Chapter e-mail address has changed to: sdkeeper@email.com< Our Chapter now has a new website at: www.geocities.com/sdaazk. Check it out!

Have a great summer and we'll see you in Toronto.

--Jo Ann Haddad, President

What's Your Chapter Been Up To?

Do you have new officers? A successful fundraiser? A new logo? Be sure and send in your latest Chapter News to share with the AAZK membership. We want to hear about all the great activities and projects you are involved with, including conservation efforts and professional development. You can send submissions electronically as Word attachments to akfeditor@kscable.com< Logos should be sent as JPEG documents.

MOVING?

Please let us know when you change your address! It now costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@kscable.com to report your new address.

THANKS!

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



The 106th Congress in Review

Between 1999 and 2000 the U.S. Congress was faced with literally hundreds of bills, many of which concerned issues of interest to those in the animal care community. Looking back, there were both “victories” and “defeats”, if you will, on animal issues. The list below is just a summary of some of the more interesting concerns dealt with by our representatives.

If you would like to know how your U.S. Senators or your particular Congress person voted on any or all of these bills, you can see their “scores” at the Fund for Animals web site at www.fund.org or you can call the Fund at (301) 585-2591 and ask for the publication titled “The Humane Scorecard” that outlines details about these bills and others. The publication contains a chart of all of the U.S. Senators and Congressional Representatives and how they voted (or failed to vote) on animal-related legislation.

Dog & Cat Fur Ban: Public Law (P.L.) 106-476 banning the import, export, and interstate sale of dog and cat fur products was passed following an 18-month undercover investigation carried out by the Humane Society of the United States to expose the international trade in cat and dog fur products including coats, accessories, figurines, and novelty items. Such products have been marketed under false names such as gae-wolf, sobaki, Asian jackal, wildcat, goyangi, and ketzenfelle. The law provides penalties of up to \$10,000 per violation of the ban along with forfeiture of the seized goods.

Airline Transport: Congress adopted some of the provisions of the Safe Air Travel for Animals Act within P.L. 106-181. This law applies primarily to the Federal Aviation Administration procedures and requires airlines to (1) produce monthly reports of all incidents involving animal loss, injury or death so consumers can compare safety records and (2) improve animal care training for baggage handlers. The airline industry was successful in blocking provisions that would have required cargo holds to be retrofitted for climate control and ventilation and allow steeper penalties for the loss of animals than for ordinary baggage.

Military Dogs: P.L. 106-446 allows retired military dogs to be adopted rather than euthanized, as had been required by Department of Defense existing regulations.

Crush Videos: This law bans interstate commerce in and commercial gain from depiction of animal cruelty, including pornographic videos of women torturing and crushing to death animals such as kittens, hamsters, chicks and turtles.

Great Apes: A statute authorizing the allocation of \$5 million annually in grants for local wildlife projects in Africa and Asia to protect highly endangered chimpanzees, bonobos, gorillas, and orangutans.

Chimpanzee Sanctuaries: P.L. 106-551 establishes a national sanctuary system for chimpanzees, no longer used in medical research, who are being warehoused in small, barren and expensive cages located in federally funded laboratories. The sanctuaries, where chimpanzees will live in a more naturalistic environment and in integrated social groups, will be less costly for taxpayers and more humane for the animals. On the downside, certain amendments to the bill resulted in the possibility of limited access to a sanctuary chimpanzee if the proposed research meets several

criteria, including (1) only minimal pain, distress and disturbance to the chimpanzee and his/her social group (as determined by the Sanctuary Board); (2) special circumstances related to the particular chimpanzee's medical history which makes him/her uniquely needed for the research; (3) the technology to be used was not available when the chimpanzee entered the sanctuary system; (4) the research is essential to address an important public health need; (5) the applicant has not violated the Animal Welfare Act; and (6) the proposal is subjected to public scrutiny through a 60-day formal notice and comment process.

Animal Welfare Inspection Act: The inspection budget for the U.S. Dept. of Agriculture averaged about \$9 million per year throughout the 1990s, yielding 64 inspectors for 10,500 sites including puppy mills, laboratories, zoos, circuses and airlines. In 2000 the funding was increased to \$12 million and 78 representatives have signed letters to the Agricultural Appropriations Subcommittee seeking further increases for AWA inspection programs in future budget years.

Small Lab Animals: Congress blocked a bill that would have required the U.S. Department of Agriculture to include mice, rats and birds under the Animal Welfare Act protections. This bill would have mandated regular inspections of research facilities and educational institutions that use these animals for research or teaching. The bill died in committee but may be raised once again in the 107th Congress.

Sea Lions: These mammals continue to be endangered by fishing trawlers that sweep the ocean floor and destroy the sea lions' food supply. Although President Clinton fought to limit the use of trawling as a fishing method, the legislation failed to pass the entire Congress. In sum, the law would have limited the use of trawling as a fishing method in ecologically sensitive areas, particularly those ocean areas inhabited by seal lions.

Captive Elephants: Introduced to reduce public safety risks and protect elephants by prohibiting their interstate transport in traveling shows and circuses, this bill never got out of the initial House Committee.

Canned Hunts: Another bill that died in committee was this bill to stop interstate and foreign commerce of confined exotic mammals destined to be shot for entertainment or trophies.

Source: The Humane Scorecard, a Project of the Humane Society of the United States and The Fund for Animals, 2001

Tuli Elephants to Go to Angola

Botswana's Director of Wildlife and National Parks, Joseph Matlhare, has issued a press release stating that about 300 elephants from the Tuli Block area are to be relocated to Angola this winter. This is part of a plan to restock Angola's elephant population that was seriously decimated by ongoing civil unrest.

Matlhare states that there are at least 120,000 elephants in Botswana which is far more than the country's carrying capacity of 50,000 animals. He further stated that the first batch of elephants will be translocated this year and the rest in 2002. Moreover, Matlhare stated that the animals must be moved to reduce conflict between elephants and rural communities in the Tuli Block area. *Source: WildNet Africa News Archive 30 April 2001*

Kenya Issues Warning About Turtle Extinction

The Kenya Wildlife Service has issued a report that sea turtles found on the country's coast are facing extinction following increased environmental pollution and illegal trawling. Indiscriminate fishing methods and a thriving black market for turtle shells and leather products have already depleted the turtle populations. At this point, however, the Service offered no specific methods or remedies for dealing with the problem. *Source: Pretoria News 25 April 2001*

Congo's Civil War Destroying Native Wildlife

According to a United Nations panel, the Democratic Republic of Congo's civil war has been decimating its wildlife as well as its human inhabitants. Thousands of elephants, okapis, gorillas and other endangered species have fallen victim to the ongoing war. The UN panel compiled a report on how participants in the many-sided conflict have plundered resources to fuel the fighting. Soldiers have allegedly slaughtered elephants for their meats as well as their tusks and buffalo for their meat, the report states.

In Garamba Park in northeastern Congo, an area controlled by Ugandan troops and Sudanese rebels, nearly 4,000 out of 12,000 elephants were killed between 1995 and 1999. Furthermore, the report says that the poaching of wildlife – particularly elephants, seems to be well organized with local villagers cooperating with soldiers from both Rwanda and Uganda to kill the animals and later sell tusks and meat. *Source: Reuters International News Online 19 April 2001*

Rare Monkey to Displace Kenyan Farmers

According to the Kenya Wildlife Service, more than 200 peasant farmers in Kenya's Tana River district are to be relocated from their ancestral land to create room for the red colubus and crested mangabey monkeys. In return, most of the families will be given residential houses in a new settlement scheme. However, some of the banana and corn farming peasants are reluctant to move from the fertile land and are accusing the KWS of being more concerned with the plight of monkeys than that of people.

A spokesperson for the KWS said that each family would get 15 acres of farmland with a title deed, a quarter acre land of a housing plot, a fully constructed house and access to clean water. The new resettlement scheme will also include an equipped primary school, police station and dispensary.

KWS says that there are about 2,400 of the rare red colubus and crested mangabey monkeys in the area. The Service is currently implementing a \$6.2 million World Bank-funded project to protect the primate reserve. *Source: African Eye News Service 18 April 2001*

For A Few Dollars More

In response to the extinction of imperiled species at "unprecedented rates," biodiversity expert E.O. Wilson contends that "U.S. \$28 billion would protect, well into the future, 70% of the known plant and animal species in the world" says *National Geographic News* 5/3. For just \$4 billion, most of the remaining tropical forest wilderness could be secured, and another \$24 billion could protect 2.4 million sq. km. of biodiversity "hot spots." *Source: GREENlines Issue # 1377 5-9-01*

Five Years Left for "Richest Forest on Earth"

Experts report in *Science* magazine that Indonesia's Sundra Shelf, "the richest forest on Earth" will be "totally destroyed in five years if the current 'resource anarchy' in the country continues" says the *Guardian* 5/4. Illegal logging "gangs" driving the Sumatran rhinoceros, Sumatran tiger and Asian elephant to extinction. *Source: GREANlines Issue # 1376 5-8-01*

Yellowstone Pronghorn in Trouble

Wildlife biologists are at a loss to explain why Yellowstone National Park's pronghorn antelope, abundant in surrounding states, is precipitously declining says Reuters 4/4. The park's pronghorns, which are a "distinct group", have declined from almost 600 ten years ago to 209 today and "is in more peril of extinction than any other species in Yellowstone." *Source: GREENlines Issue # 1363 4/19/01*

AAZK Enrichment Notebook Second Edition Revised

The AAZK Enrichment Notebook, 2nd Edition, was designed to be user friendly and to provide the kind of information needed to build a comprehensive enrichment program. The AAZK Enrichment Notebook, 2nd Edition, is a tabbed, 3-inch binder with 213 pages (many of them duplexed) of enrichment information (plus an index) which includes an overview of enrichment, a resources and suppliers list, links to enrichment information, sample enrichment forms in use at various institutions, guidelines for enriching various taxa (reptiles, birds, primates, carnivores, ungulates and bats), risk assessment and safety issues, a browse plant list, a toxic plant list, cookbook recipes, an enrichment idea catalog that includes all entries from the original AAZK Enrichment Notebook plus new submissions, and institutional contacts.

The AAZK Enrichment Committee will be working on a bibliography and a tab has been provided for this future project. A Table of Contents and Index make it easier to access the information. You may purchase the entire binder or just the notebook "guts" to update a previously purchased AAZK Enrichment Notebook. The AAZK Enrichment Notebook was designed to be a "living document" with ample space for future AAZK Enrichment Committee projects and/or other information gathered by you or your institution.

To order, fill out the form below and return with your payment to: AAZK, Inc., Enrichment Notebook, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 U. S. A. Checks and money orders should be made payable to "AAZK, Inc." (U. S. FUNDS ONLY). Allow 4-6 weeks for delivery. If using a credit card, make sure to complete all requested information on form. Prices include Domestic Book Rate Postage. Orders outside the continental United States should add \$15.00 for parcel post surface shipping. Prices are:

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Resources for Crisis Management in Zoos and Other Animal Care Facilities

Resources for Crisis Management in Zoos and Other Animal Care Facilities - edited by S.D. Chan, W.K. Baker, Jr. and D.L. Guerrero. ©1999 ISBN #1-929672-02-0

This reference work is an anthology of articles by authors from zoo keepers to veterinarians to zoo directors to public relations specialists. The works of 56 authors from these diverse zoological perspectives brings together information and resources for planning a crisis management program for your facility or for augmenting an existing program. The 424-page volume includes a foreward by Sydney J. Butler, Executive Director of the American Zoo and Aquarium Association.

The book's chapters are arranged by the following subject topics: Factors That Influence Crisis Management in a Zoological Setting; Developing An Emergency Preparedness Plan; Emergency Response and Crisis Management Teams; Public Relations and the Crisis Situation; Animal Restraint and Animal Identification Techniques; Dealing with A Crisis Situation (Zoological Crisis, Natural Disasters, and Manmade Disasters); Injury and Death at the Zoo; and Taxon-Specific Crisis Management Protocols. This important work also includes an extensive Appendix and a listing of suppliers and equipment vendors. AAZK has gathered the best of existing articles on crisis management and expanded the text with originally solicited materials on Zoonotic Disease: Risk Appreciation and Biosafety, Meteorological Aspects of Disaster Planning, The Weapons Response to a Zoological Crisis Situation, The Process of Exhibit Design and Construction: How It Affects Crisis Management, etc. The book includes the results of the first-ever North American Crisis Management Survey as well as Case Studies showing how zoos reacted in various crisis situations and what was learned from their experiences. A must for every zoo professional!

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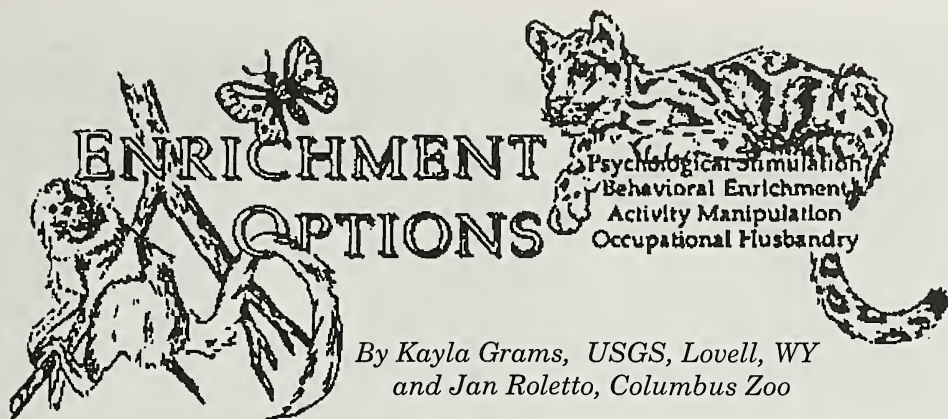
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Signature: _____ TOTAL ENCLOSED \$ _____

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*By Kayla Grams, USGS, Lovell, WY
and Jan Roletto, Columbus Zoo*

Multifunctional Enrichment Tool

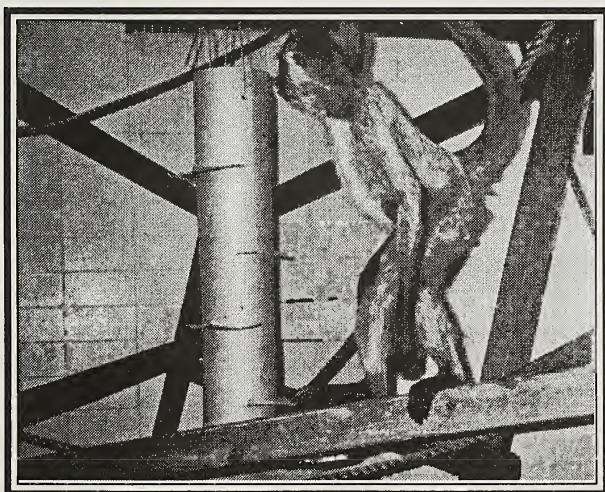
About one year ago, I found one of the most versatile enrichment tools. In addition to being a hoof-stock keeper, I am also a part-time bookseller at Barnes & Noble. Each month the store receives all of its posters and promotional graphics in large cardboard tubes. This tube can be used in a variety of animal enrichment activities. The tube measures 4 feet tall (1.219m) and 8 inches (20.3cm) in diameter. The tube's thickness is 1/4 inch, and surprisingly durable, allowing for a variety of uses. By adding cardboard "shelves" inside the tube, we make a puzzle feeder for primates. We use the tube as the body for piñatas given to tigers and pronghorn. It is used as a toy to push around for warthogs, a black rhino and a play-den for fox pups. By drilling various sized holes and hanging it horizontally, the tubes also become a great puzzle feeder for a variety of hoof-stock (the guanacos really enjoyed this one!). As you can see, the uses for this tube are endless and are only limited by your imagination. After talking with the store manager, she spoke to the regional manager. Anyone interested in obtaining these tubes on a regular basis can contact their local Barnes & Noble store and speak to the manager. More than likely, your local store throws these tubes away, so getting them should not be a problem. Best of all, the price is great and the opportunities for enrichment are endless!

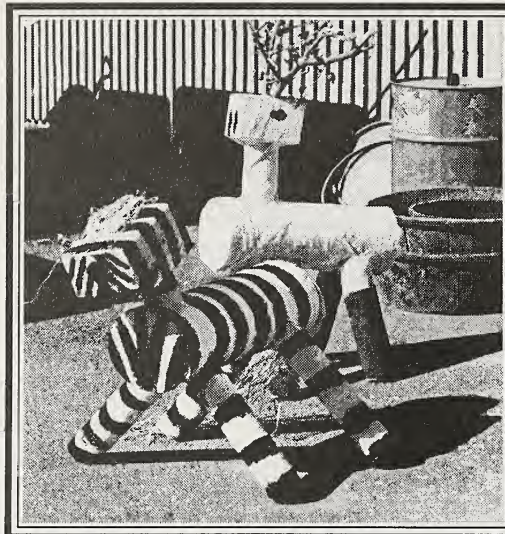
*--Stephanie DeGesero, Senior Hoof-stock keeper
Great Plains Zoo, Sioux Falls*

*Editor's note: If a Barnes & Noble is not accessible for your facility, other companies that may use cardboard tubing include paper companies, movie theaters, dry cleaners and meat departments of most grocery stores (from large rolls of butcher paper).

**Spider monkey (*Ateles geoffroyi*)
investigates a puzzle feeder.**

(Photo provided by the author)





At left, the soon-to-be enrichment “victims”. At right, a great example of typical rut behavior from our male pronghorn (*Antilocapra americana*). (Photos provided by author)



Our Siberian tigers (*Panthera t. altaica*) really enjoyed their meat-filled piñata. (Photo provided by author)

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

Visit the AAZK Enrichment Website - www.enrich.org/aazk or
to join the Enrichment Listserve, email jackbell@humboldt1.com
An archive of past postings may be viewed at www.caza.org/enrich

ATTENTION ARTISTS ! !

Deadline Extended To Submit Your Artwork!



Deadline for submissions is July 1, 2001

****Enrichment Options ART Contest****

We would like to create a new design for our column heading! Who will be the lucky artist to grace our pages each month? Send in your design that incorporates why we challenge ourselves everyday to enrich the lives of those in our care. The lucky winner will receive a special prize for their contribution!!

The logo should be **Crisp, black and white, and clear!**

Note the size in the *Animal Keepers' Forum*. The logo should be no larger then it.

You may include the Enrichment Options title into the picture, or without.

Submissions should be black pen and ink for better quality.

Be creative. You can send your submissions to the AAZK Offices, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 USA - Attn: Enrichment Options Art Contest

Training Cheetah (*Acinonyx jubatus*) for Urine Collection at Disney's Animal Kingdom

By

Angela Cecil, Animal Keeper

Disney's Animal Kingdom, Lake Buena Vista, FL

Introduction

A lack of genetic variation in cheetahs gives rise to concern for potential disease vulnerability and medical complications (Meltzer, 1999). For instance, eight types of kidney disease have been detected in the North American cheetah population (Munson, 1992). Unfortunately, up to 70% of kidney function can be lost before clinical signs are evident (Don Neiffer, DVM, personal communication). Although urinalysis is a standard part of any annual exam, more frequent monitoring may be needed for early detection of an abnormality.

Considering these factors, the animal management challenge is the mode of urine collection. Prior to training the cheetahs for non-sedated collection at Disney's Animal Kingdom, urine was obtained during annual immobilization. Standard clinical methods provided some success; however, empty bladders posed a problem in some cases. Outside of immobilizations, opportunistic collections off of a clean floor were used. This method does not offer reliable results.

In the interest of collecting clean urine samples on a reliable basis, the animal keepers were charged with the challenge of training the cheetahs to urinate on cue onto a clean surface. This would allow for collection from an individual as needed without causing stress to the animal.

Methodology

To get started, a knowledge of current urination patterns was needed. Ad-lib observations were made during daily routines to note any existing trends. Two older females both showed a habit of urinating in their bedroom stalls after eating. The male spray marked a pole in the holding paddock nightly after shifting off exhibit. Time of day and location were both considered for potential capturing of the behavior.

After urination habits were noted, trainers started to shape the behavior by using a conditioned reinforcer, or bridge, followed directly by payment with a food reward or primary reinforcer. This was to associate the primary reinforcer with the urination behavior. The existing training program used meatballs from the diet for primary reinforcement. The meat was presented on the end of a plastic 'meatstick' through a mesh barrier. Commands or cues were not given at this stage.

Once the animal was bridged and rewarded for urination several times and the behavior was somewhat predictable, a cue was added. The cue that was chosen was a visual hand signal paired with the verbal cue, "spritz." For the visual cue, the trainer's hand was held above shoulder height and waved over the trainer's shoulder, resembling a backward waving motion. These cues were given simultaneously, just prior to expecting the animal to urinate. Reinforcement was given the instant the animal began to urinate in the early stages of shaping, then lengthened slightly to allow for a larger volume of urine output before bridging.

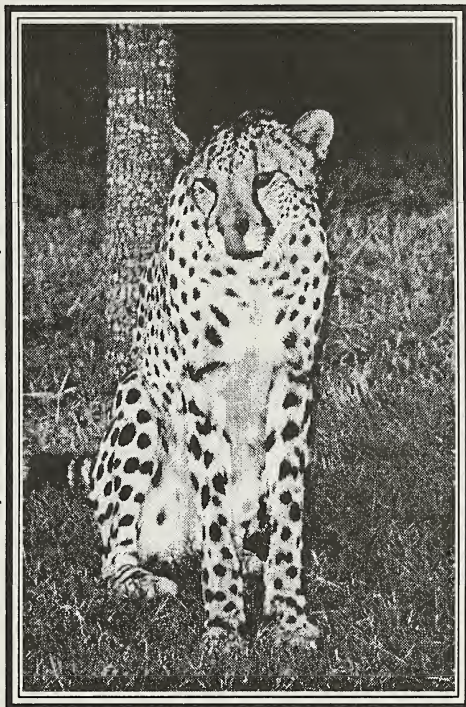
When urination reliably occurred in conjunction with the cue, collection methods were explored. The females that urinated inside the holding area were trained to get up on a bench with open spaces between plastic slats. The trainer would then give the cue to 'spritz' while the cat was on the bench. The urine fell through to a large metal 'cookie sheet' that was positioned directly under the bench. The bench and pan were disinfected prior to the session to ensure the sample would be sterile. After the session, the cheetah was shifted out of the stall and the urine was transferred to a sterile cup with a pipette.

Discussion

The methods that were used to capture the urination behavior were only implemented after the cheetah training program had been established. Prior to attempting to train for urine collection, keepers established a working relationship with the cats. The animals were trained to have an understanding of the conditioned reinforcer or bridge, and the ability to safely and calmly take food rewards. The cheetahs were conditioned to perform basic body positioning behaviors. The 'up' behavior was used during shaping to get the cats to jump up onto a platform bench. The 'sit' behavior was useful when getting the females to stay on the bench long enough to get the 'spritz' command in the early stages of training on the bench. These basic husbandry behaviors as well as the established relationship with the trainers proved useful during the urine collection training.

Capturing the urination behavior with two of the female cheetahs was relatively easy due to their pre-existing habit of urinating in their holding area. The feeding routine was altered by waiting to feed until the urination occurred, thus using the meat as positive reinforcement. The first few attempts to get urination to occur while the trainer watched took some patience, as the cats were not used to being locked inside with nothing happening. They paced and called for a while before urinating. After the first 'capturing' of the urination, the rest of the training went smoothly. The first cat to be trained took about two weeks to start routinely urinating when entering the stall. The second cat urinated the very first time collection was attempted and learned the behavior within one week.

There were a few challenges that existed with the other cats in the collection. A younger female did not urinate often while in the holding area. Keepers watched her for several weeks for 10-15 minutes each night when she was shifted into a stall. She only paced and called, producing no urine. During these sessions, keepers put the cheetah outside and left the area for a while before feeding her. She was then either trained in a non-urine related session or fed in the normal fashion. The time lapse between watching her and feeding was used to eliminate the chance that she would associate pacing and calling with food reinforcement. This intensity of her pacing and calling also increased when she was separated for any length of time. To help counter this, the trainers worked with her on separation training (providing positive reinforcement for calm behavior) that was meant to help the cat overcome the anxiety of being separated for short periods of time.



0.1 cheetah Zeejah at Disney's Animal Kingdom in 1999. (Photo by Jason Merkel)

The male cheetah was easy to train to spray on cue in the outside paddock area because he did this naturally each night. The training team intends to transfer the 'spray' behavior to a training crate and collect from a pan. Another option for collecting from a male that sprays is to 'transfer' the location of the spray behavior to the mesh that the trainer is standing by. If the cat would spray through the fence, the trainer could hold a collection cup (on a stick!) in the stream. Transferring to a closer location may take time and patience in watching the animal spray different locations and reinforcing the desired ones. Scents could be placed in the location to possibly encourage the behavior (e.g.: cologne, catnip or various hunting scents such as fox or raccoon scent).

Conclusion

The training techniques that were used to facilitate urine collection from cheetahs at Disney's Animal Kingdom can be adapted to other facilities. With some ad-lib observations of the cats to observe normal urination patterns, training can be utilized to capture the behavior of urination. Once the animal urinates on a cue, collection methods can be explored and adapted to the animal's abilities and the facility. Care needs to be taken to ensure that the sample is as fresh and clean as possible in order to allow accurate test results. And last but not least, team work is essential to allow for consistency in training practices and to obtain the maximum chance for capturing the behavior (the more eyes watching for the behavior, the better the odds of catching it).

The captive cheetah is well known for its medical issues. Zoos and animal specialists around the globe are working to understand and manage many of these issues. With an ever-increasing knowledge of animal training techniques, zookeepers around the world are discovering innovative ways to meet challenges of animal care as they arise. With new partnerships forming between animal keepers and medical care staff, many of the cheetahs' health care needs can be met outside of the procedure room and a greater understanding of the cheetah may be developed.

Acknowledgments

I would like to thank the following people for their contributions to the training program in reference to cheetah urine collection:

Jennifer Hylton, primary trainer of 0.1 cheetah, 'Zeejah' and 1.0, 'Forrest' and the verbal and visual cue developer for the 'spritz' behavior; Deborah Abramson, primary trainer of 0.1, 'Mbosa'; and Jason Merkel and Greg Peccie, trainers of 0.1, 'Jenny'; Gary Noble, Zoological Manager; Don Neiffer, DVM for supplying us with much information on the medical aspects of cheetah management; and Marty Sevenich-McPhee, Curator of Behavioral Husbandry.

Without their contributions and support of the program, the urine collection program would not be as successful as it has been.

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- Meltzer, D. Medical Management of a Cheetah Breeding Facility in South Africa. ZOO AND WILD ANIMAL MEDICINE, p 415, 1999.
- Munson, L. Diseases of Captive Cheetahs (*Acinonyx jubatus*): Results of the Cheetah Research Council Pathology Survey, 1989-1992. ZOO BIOLOGY 12:105-124, 1993.

Interesting Websites to Check Out

AZA Mimimun Husbandry Guidelines for Keeping Antelopes and Gazelles in Captivity <http://www.antelopetag.org/hus.htm>

Drosophila husbandry guidelines <http://www.molbio.wisc.edu/carroll/methods/Drosophila/DrosHusbandry.html>

Husbandry Guidelines For the Bali Mynah <http://www.riverbanks.org/aig/husband.htm>

Management Guidelines For The Welfare Of Zoo Animals Red Squirrels
<http://www.geocities.com/RainForest/6784/Guidelines.html>

AZA Mimimun Husbandry Guidelines for Medium and Large Canids in Captivity
<http://www.species.net/Carnivora/Canidae/GuideLD.html>

AZA Mimimun Guidelines for Keeping Small Canids in Captivity
<http://www.species.net/Carnivora/Canidae/Guidesd.htm>

Husbandry and Management of the Proboscis Monkey (*Nasalis larvatus*) in the Singapore Zoological Gardens http://www.seaza.org/animal_husbandry_husbandry_and_management_of_the_proboscis_monkey.htm

Guidelines for the Housing and Management of Orang utans (*Pongo pygmaeus* and *Pongo abeli*)
http://www.seaza.org/animal_husbandry/australasian_species_management_orang_utan.htm

Fruit Bat Husbandry Manual http://www.riverbanks.org/battag/links/husbandry_manual.html

Basic Husbandry of Reindeer <http://mercury.bio.uaf.edu/~vet.organizations/bou.html>

Palm Cockatoo SSP Husbandry Manual <http://www.funnyfarmexotics.com/PALM/patoc.htm>

Xenopus spp. Husbandry <http://www.oprs.ucla.edu/animal/xenopus.htm>

Alpaca Management Guidelines <http://www.europaca.com/alpacamanagement.htm>

Cotton-top Tamarin SSP© Husbandry Manual <http://www.selu.com/bio/cottontop/husbandry/index.html>

Captive Husbandry of the Eastern Clemmys Group at Zoo Atlanta
<http://www.tortoise.org/archives/clemmys.html>

Management and Conservation of Captive Tigers, *Panthera tigris*
http://www.5tigers.com/Zoos/Husbandry_Manual/husman.htm

Zoo Husbandry and Research: An Integrated Approach
<http://www.psyeta.org/hia/vol8/pastorello.html>

Elephant Husbandry at the Toledo Zoo <http://www.indyzoo.com/ema/old/HusbandryToledoZoo.html>

Bibliography of Wolverine Literature
<http://www.spiritone.com/~orsierra/rogue/creature/wolvreen/biball.htm>

Semen Collection in *Diceros bicornis* http://www.vet.gla.ac.uk/vetscape/vet-x/rhino_semen/

Post-Coital Semen Collection and Cryopreservation in the Endangered Sumatran Rhino
<http://199.245.200.58/ssr/html/32.html>

--With special thanks to Peter Dickinson of ZooNews Digest and Zoo Biology listserve for this great list of websites

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive the AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our fax is (785) 273-1980; e-mail is akfeditor@kscable.com< We are no longer located at the Topeka Zoo, so please note new address!*

AVICULTURIST...Dallas World Aquarium. The Dallas World Aquarium is seeking an aviculturist to provide daily maintenance of a diverse collection of South American birds and a colony of Black-footed penguins. The Dallas World Aquarium is particularly focused on the families Ramphastidae, Emberizidae, and Cotingidae, the successful candidate would have some knowledge in these species as well as diverse general ornithological experience. Responsibilities: Duties will include diet preparation for and feeding of the avian collection, cleaning and maintenance of exhibits and holding areas, hand-rearing, enrichment, record keeping, and observation of the bird collection. Will help monitor health of collection through daily observations and will research captive and natural history information to determine correct environment and diet for maintenance, exhibition, and/or breeding of avian collection. Requirements: Bachelor's degree in biology, zoology, or related field, or equivalent work experience in a professional animal facility required. Prior experience with bird keeping, breeding, capture, handling, etc... required. Must have excellent communication skills and ability to work as a team member. This is a full-time (two consecutive days off a week, not necessarily weekends). Competitive salary and benefits. **Position open until filled.** Please send resume to: Dallas World Aquarium, attn: Daryl Richardson, 1801 North Griffin Street, Dallas, TX 75202; or e-mail to: dallasworld_aquarium@hotmail.com

COORDINATOR FOR ANIMAL CARE...The Psychology Department at the University of Nebraska at Omaha anticipates hiring a Coordinator of Animal Care. The position is a full-time, salaried line, with excellent health and retirement benefits. Job duties include directing and performing animal care for a colony of marmoset monkeys used in noninvasive research on captive breeding and social behavior, supervisory responsibilities for an Animal Care Technician, assisting in veterinary management of the colony, maintaining facility inventories, training students and volunteers, and analyzing and preparing reports on colony data. Minimum requirements include a BS/BA in psychology, biology/life sciences, or anthropology, and experience in animal care and/or veterinary medicine. Experience with exotic animals or AALAS certification is preferred. Salary depends upon qualifications. A letter of interest and resume should be sent to: Human Resources, University of Nebraska at Omaha, 6001 Dodge Street, Omaha, NE 68182-0263; Voice: (402) 554-2321; FAX: (402) 554-3777. Inquiries about the position can be addressed to: Jeff French whose e-mail is: jfrench@unomaha.edu< The University of Nebraska at Omaha is an Affirmative Action/Equal Opportunity Employer. Minorities, women, disabled, and Vietnam-era veterans are encouraged to apply.

ZOOKEEPER...Happy Hollow Zoo, San Jose, CA is expecting applications to establish a list for FT/PT Zookeeper positions. We are looking for individuals who have had paid experience working in a zoo, and bring with them a desire to do more than the minimum required, ability to work in a harmonious manner with staff, volunteers and supervisors and work any of the seven days of the week. We want people who can take on the responsibility of helping to make our zoo a pleasant experience for our guests. Responsible for daily routine of animal husbandry, maintenance of exhibit and off-exhibit areas, record keeping and assisting in veterinary procedures. Prefer AS/BS degree in biology/zoology. Salary: \$26,628-\$32,364 annually plus excellent benefits. **Open until filled.** Contact Wayne Cohen at 408-277-4679 for an application and questions.

ANIMAL KEEPER...ZooMontana is accepting applications for immediate part-time and future full-time positions in animal care. As a growing AZA-accredited institution, we are seeking keepers who are willing to contribute to the development process. Qualified applicants must be at least 18 years of age and have a high school diploma or equivalent. Training and enrichment experience desired. Experience with farm animals, North American wildlife, tigers, or red pandas a plus. Applicants must have excellent communication skills and be able to work in a team environment. Must be able to work weekends and evenings on a rotating basis. Send or fax cover letter and resumé to: Renee Hodgson, General Curator, ZooMontana, 2100 S. Shiloh Rd., Billings, MT 59106; Fax (406) 652-9281.

INTERNSHIPS...ZooMontana is seeking Interns for animal care, education, and volunteer resources for the summer and fall. These are exciting opportunities to actively contribute to a growing zoo featuring unusual Asian and North American species. Qualified applicants must be at least 18 years of age and have

a high school diploma or equivalent. Applicants must have good communication skills and be able to work in a team environment. Must be able to work flexible hours for a minimum commitment of three (3) months (negotiable). Internships are unpaid, but students may be eligible to receive college credit. Send or fax cover letter and resumé to: Internship Program, ZooMontana, 2100 S. Shiloh Rd., Billings, MT 59106; Fax (406) 652-9281.

Catoctin Wildlife Preserve and Zoo has the following four full-time positions available beginning immediately. For all positions, duties include all aspects of animal care including feeding, cleaning, diet prep, animal and exhibit enrichment, daily record keeping, health monitoring, interaction with the public and assistance with department improvement projects. Salary commensurate with experience. Good medical, dental and prescription benefits. Annual support for continuing education/conferences. Paid vacation after one (1) year. Flexible work schedule and personal days. College degree a plus but not required. Positions open until filled.

We are looking for professionally-oriented people to grow with us. Send resumé with salary requirements to: R.Hahn, Chief Animal Person, Catoctin Wildlife Preserve and Zoo, 13019 Catoctin Furnace Road, Thurmont, MD 21788. Please specify which position you are applying for. Information about our facility may be viewed online at www.CWPZoo.com<

GENERAL CURATOR OF THE ANIMAL COLLECTION...supervises all animal care positions including volunteers and seasonal interns. Must be knowledgeable in the basic husbandry of all Chordata phyla, well-organized and able to work well with all staff and visitors. Must have at least five (5) years experience in a professional zoo situation with at least three (3) years of supervisory experience in middle management. College degree a plus but will substitute experience for sheepskin. Must be able to finish the standard requirements for this position description. Reports to Wildlife Director. Coordinates with Registrar, Horticultural and Maintenance Department Heads, Vet Tech and Contract Veterinarians.

AVIAN SPECIALIST...works with primarily psittacines and gallinaceous birds. Flamingos, ibis, doves, kookaburra, mudhens, condor, cranes and all four large ratites also in collection. At least two (2) years experience in a private or public facility maintaining and breeding the above taxa. Knowledge of incubation and rearing chicks required. Reports to lead animal care.

POLIKILOTHERM SPECIALIST...works primarily with chelonians and boidae. Some venomous snakes, lizards, colubrids, crocodilians, amphibians, fish and invertebrates. At least four (4) years experience with a diversified collection. Breeding experience a must. College degree, extensive herp reproductive and exhibit experience a plus. Reports to lead animal care.

UNGULATE/RATITE SPECIALIST...works with antelope, deer, elk, wild sheep, ostrich, emu, rhea, cassowary and domestic hoofed stock. At least two (2) years experience in a public or private facility maintaining and rearing the above taxa. Requires knowledge of basic health concerns including preventative vaccinations and worming procedures. Fence building and maintenance a plus. Reports to lead animal care.

AVICULTURE INTERN...interns receive intensive hands-on training in the care and maintenance of a large bird collection. They will experience all aspects of bird husbandry including general cleaning, handling, incubation, record keeping, public education, etc. Seeking college students or recent graduates with an interest in avian management/zoo biology. Interns will work with aviculturists for a minimum three-month period. This is a volunteer position with on-site housing provided. Possible stipend. Internships are available year-round. Our interns receive the same training as any new staff member, and most have gone on to paid positions in large AZA accredited institutions. Send cover letter and resumé with references to: Tracey Aviary, 589 E. 1300 South, Salt Lake City, UT 84105. Fax to: (801) 596-7325. ATTN: Kim Sorensen/Jennifer Morris.

PRIMATE FOUNDATION OF ARIZONA BEHAVIORAL RESEARCH INTERNSHIP...The Primate Foundation of Arizona is currently accepting applications for their Behavioral Research Internship program. PFA is a private, non-profit, corporation devoted to the preservation, propagation, and study of the chimpanzee (*Pan troglodytes*). It is currently home to more than 70 socially-housed chimpanzees and conducts behavioral research with a goal of improving captive management, environmental enrichment, and well-being of the chimpanzees. The research is conducted on site.

The Behavioral Research Internship provides college students in the behavioral and biological sciences the

opportunity for behavioral research experience. It includes three basic components: 1) an introduction to chimpanzee behavior and behavioral observation data collection, 2) chimpanzee psychological wellness program and environmental enrichment training, and 3) research support tasks such as data entry. The introduction to chimpanzee behavioral observation is the primary component of the internship and includes data collection on an assigned project, entering the data into a spreadsheet program, conducting preliminary analysis and completion of a background literature review. Results of the intern project are presented at the end of the internship to the full staff to provide presentation experience.

The internship is on a volunteer basis and provides no stipend. Students should have completed at least two years of a four-year program (Junior level standing) in the behavioral or biological sciences. Both undergraduate and graduate students are encouraged to apply. Previous course work and/or experience in primatology/animal behavior is required for all students. Applications are accepted for three internship periods: Summer, Fall, and Spring. Each internship is three months in duration: Summer - June 1 to August 31; Fall - September 1 to November 28; Spring: March 1 to May 30. Applications should be submitted at least six weeks in advance of the internship start date. Please submit your application ASAP as we receive as many as 100 applicants per position. For further information and application materials, please send a letter of request including your full name and mailing address to: Sue Howell, Ph.D., Research Director, Primate Foundation of Arizona, P.O. Box 20027, Mesa, AZ 85277-0027; email: suehpfa@qwest.net

*Positions posted with AAZK, Inc. may also be found on
our website at www.aazk.org*

*Also, you may want to check out the AZA Member Institution job listings
at <http://www.aza.org>*

For the most up to date links to sites advertising zoo work go to
<http://members.tripod.com/~Sciurus/index.html>

Front Royal Closure Recinded

On Sunday, May 6, 2001, the following statement was issued from the office of Smithsonian Secretary Lawrence Small:

Today, I informed the Board of Regents that I have decided not to go forward with the proposal to close the National Zoo's Conservation and Research Center in Front Royal, Va. It will continue to operate under the direction of the National Zoo Director Lucy Spelman. We made this decision because it was clear from the messages we received from individuals and organizations around the country that the proposal was interpreted by many as indicating that the Smithsonian was backing away from its commitment to science in general, and to the biological sciences in particular. Nothing could be further from the truth, but clearly this action is necessary to correct that false perception. While our intention had been to save the significant cost of managing such a large physical property and reinvest those savings in scientific research, it is now obvious that the message did not come through. Rather than continue a controversy that was harmful to the Institution, we decided to withdraw the proposal.

Sandra K Reid

Confidential Assistant to the Under Secretary for Science

1000 Jefferson Drive, S.W./Room 230, Washington, D.C. 20560

(202) 786-2332 (202) 633-8942 fax

--from ZooNews Digest 154 May 7-13, 2001

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Other staff & volunteers
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*Those not connected with
an animal facility*
- ☐ **\$60 or up - Individuals**
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Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



**American Association
of Zoo Keepers, Inc.
3601 S. W. 29th St., Suite 133
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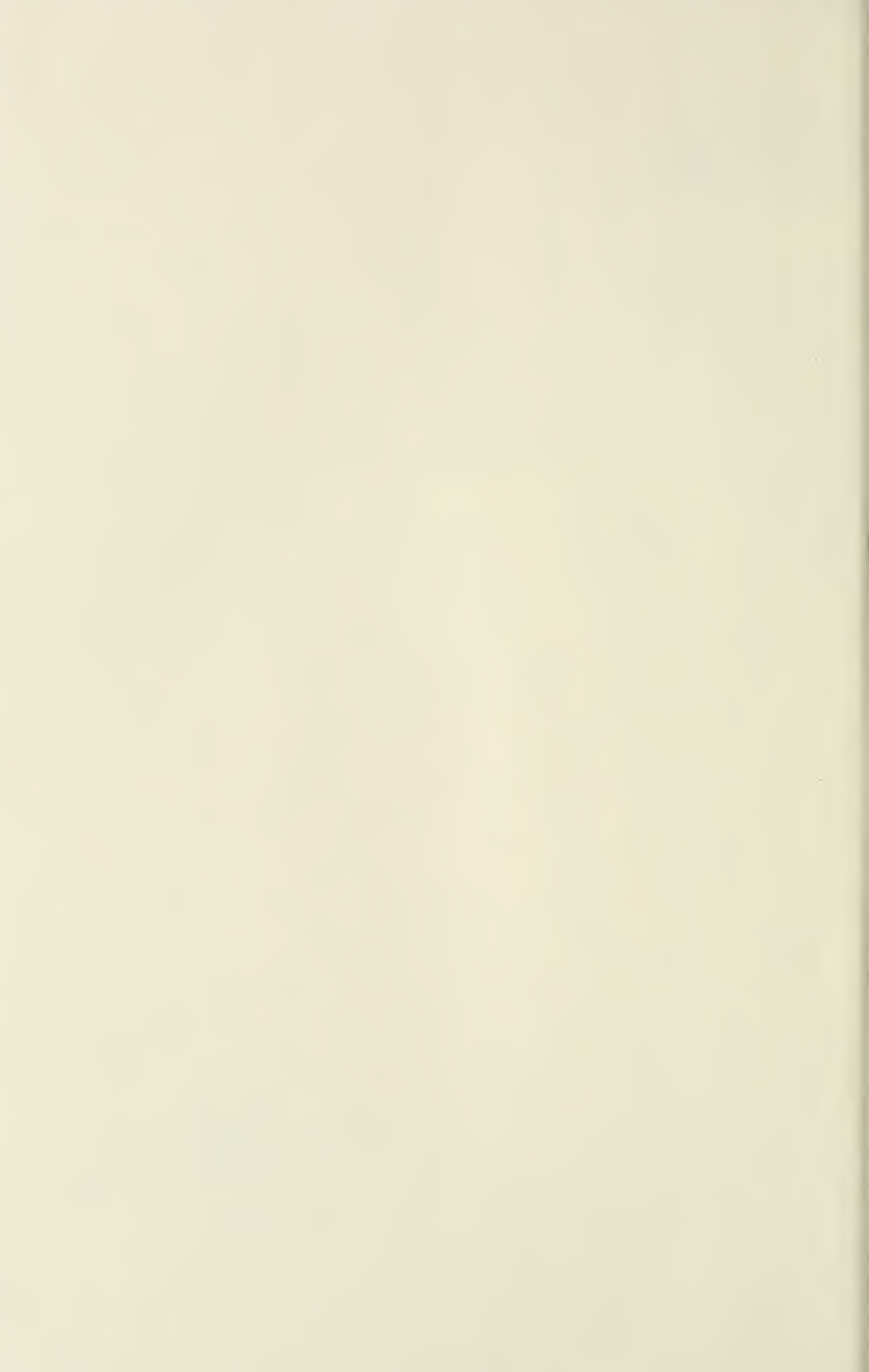
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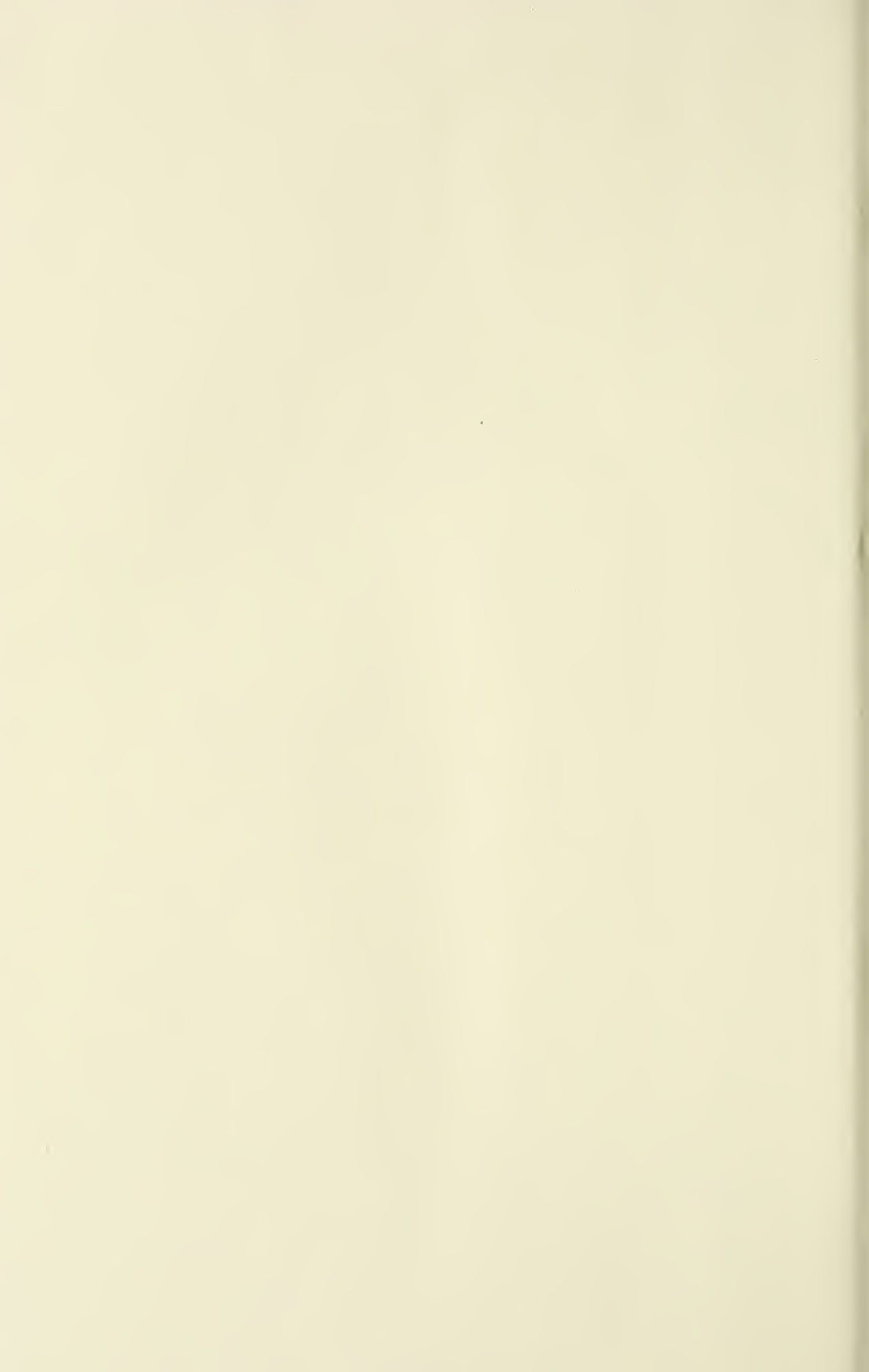
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